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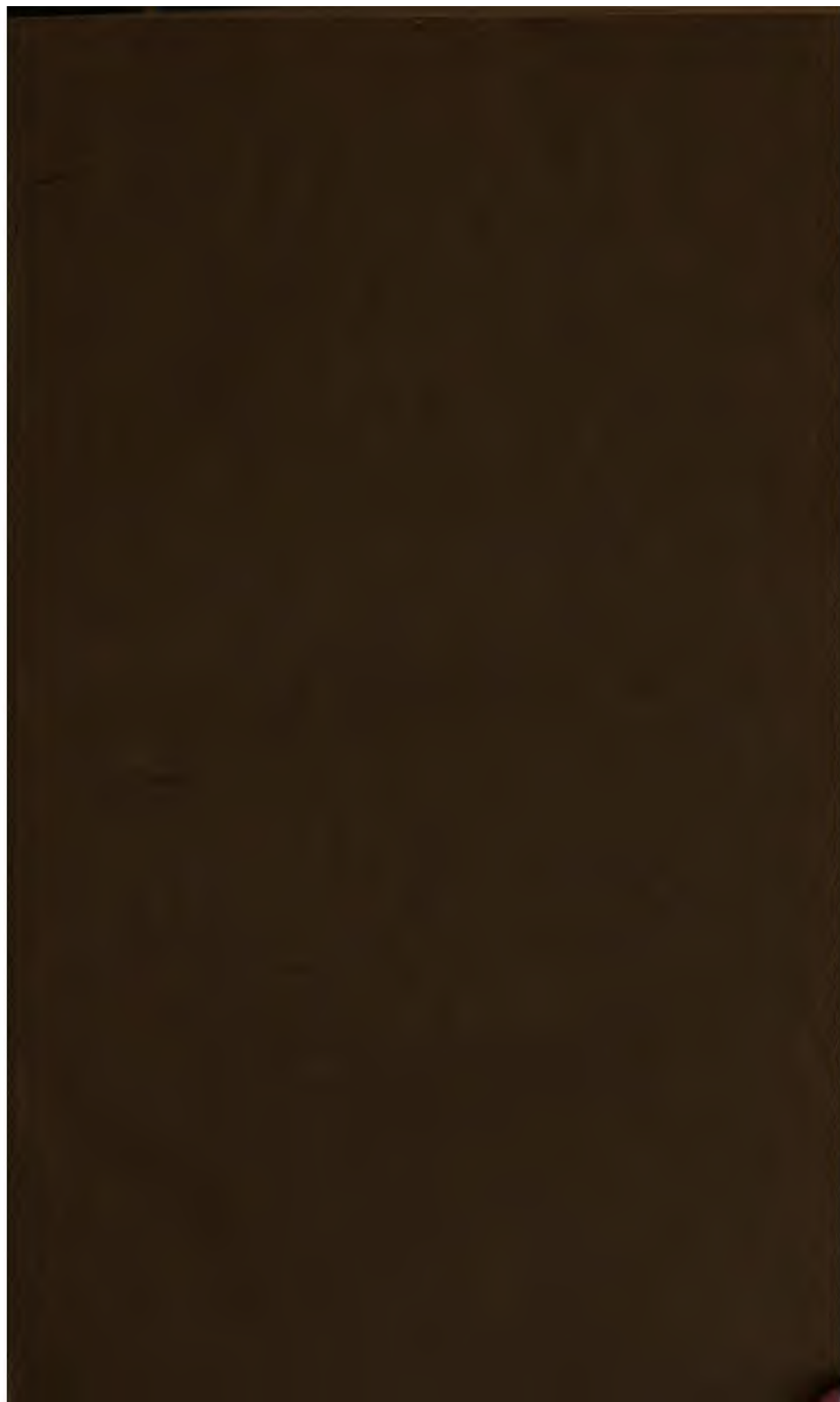
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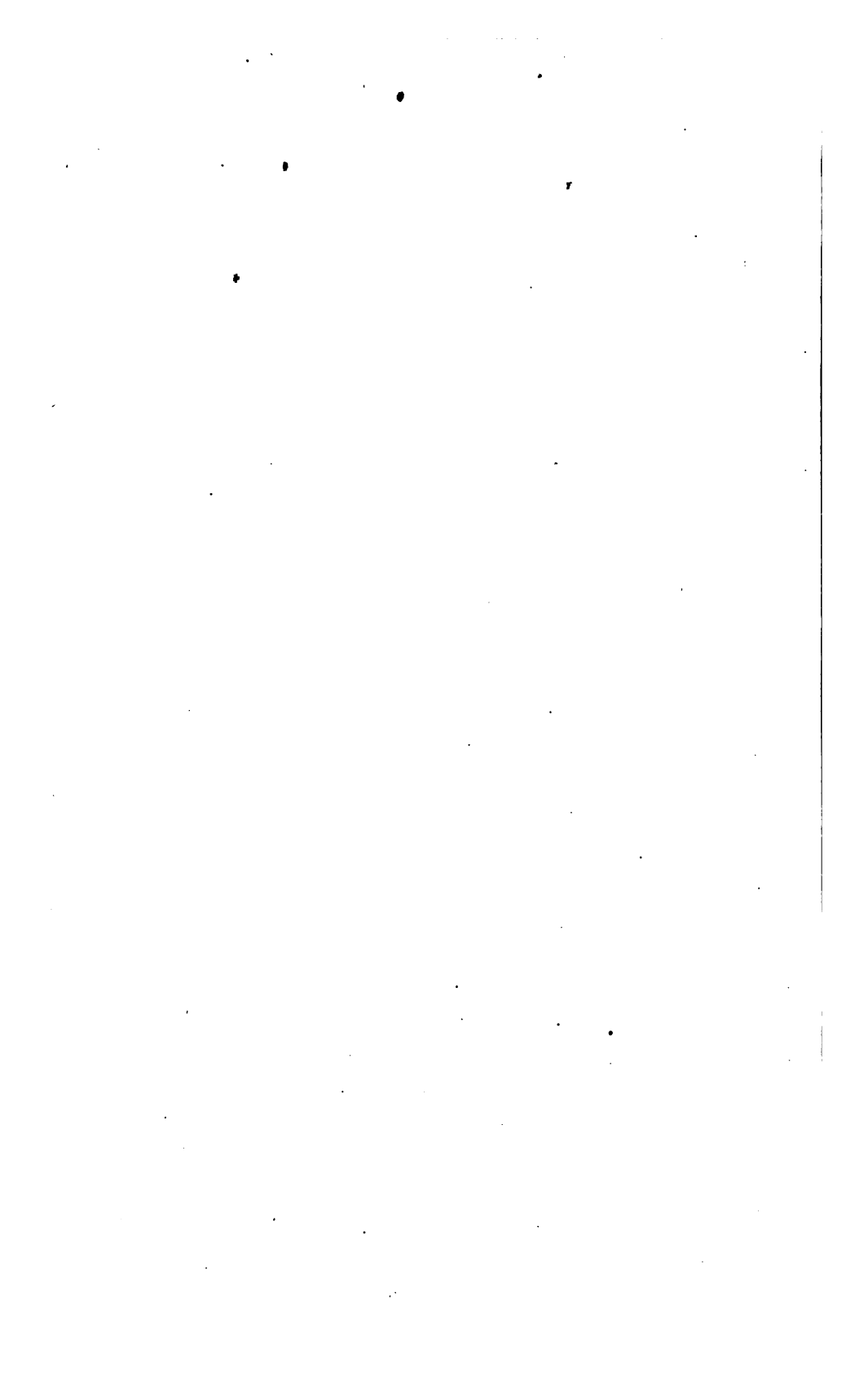




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**THE PHYTOLOGIST FOR 1848.**  
**Pp. 1—384.**

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THE  
PHYTOLOGIST:  
A  
POPULAR  
BOTANICAL MISCELLANY.

CONDUCTED BY  
EDWARD NEWMAN.

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VOLUME THE THIRD.



LONDON:  
JOHN VAN VOORST, PATERNOSTER ROW.  
M.DCCC.XLVIII.

“Not a tree,  
A plant, a leaf, a blossom, but contains  
A folio volume. We may read and read  
And read again, and still find something new,  
Something to please and something to instruct.”

THE VILLAGE CURATE.

## PREFACE.

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IT is with unusual pleasure that I offer my annual address to the readers of the 'Phytologist.' Fully aware of the cordial good feeling that exists among British botanists towards this journal, I am confident they will receive with satisfaction the announcement that the sale has considerably increased: the amount produced by the sale during the half-year ending the 30th June, exceeded that of any previous half-year; and I learn, although the accounts are not yet made up, that the half-year ending the 31st December is likely to exhibit a still further increase. This satisfactory state as regards finance is accompanied by one equally satisfactory as regards contributions: these have been so numerous as to compel me to publish a third sheet on two occasions, making forty-eight pages instead of thirty-two. I hope this abundance of matter will still continue to flow in, as I shall never object to the extra cost of printing: indeed, if the press of matter required it, I should have great pleasure in seeing the work permanently enlarged, for I cannot shut my eyes to the fact that the present price of the 'Phytologist' will not bear comparison with that of the popular periodical literature of the day; and can only be justified by a reference to the extremely limited section of the reading public that feels an interest in the annals of British Botany; and when the purchasers are few the charge must be comparatively high.

The papers have been rather of a general than particular character, and the additions made to our *botanical knowledge* greater than those to our *list of species*. Among the *former* I need scarcely remind the reader of Dr. Planchon's admirable paper on *Ulmus* (Phytol. iii. 34), Mr. Watson's on two allied species of *Malva* (iii. 221), on the *Filago germanica* of Linneus (iii. 313), &c., and Dr. Bromfield's on the

Plants growing wild in Hampshire, still in course of publication. Among the *latter* the following may be enumerated, although it must be observed that many of them are rather additional names than additional species: they are mostly forms, which have been either confused with more familiar species, or only distinguished from them as varieties. Those which do not come under this category may be referred to that of the introduced plants.

*Trifolium elegans* (Phytol. iii. 47) is recorded by Mr. Hewett Watson as having occurred in clover-fields in Surrey, doubtless introduced with imported seeds.

*Filago Jussiei* (Phytol. iii. 216) is announced by Mr. G. S. Gibson as a British species, occurring in the counties of Cambridge and Essex. Subsequently Mr. Hewett Watson explained that it is identical with the *F. spatulata* of Presl and Jordan, which he finds in various parishes in Surrey (Phytol. ii. 313).

*Apera interrupta* and *Orobanche Picridis* (Phytol. iii. 269) are mentioned in a Report from the Botanical Society of London, Mr. G. S. Gibson having presented specimens of the two plants to that Society; the former discovered near Thetford, by the Rev. W. W. Newbould, and the latter found by the same botanist, at Comberton, near Cambridge.

*Alsine rubra*, var. *media* (Phytol. iii. 321). Under this name Mr. F. J. A. Hort records the discovery of a plant in the counties of Devon, Dorset and Pembroke, which is supposed likely to prove a species distinct from *A. rubra*, and which has, indeed, been described as such by Fries and others.

*Melilotus arvensis* (Phytol. iii. 344) is recorded in a Report from the Secretary of the Botanical Society, as having been presented by Mr. G. S. Gibson, from the neighbourhood of Saffron Walden, in Essex.

*Potentilla mixta*, *Mercurialis ovata*, *Carex Kochiana*, *Triticum biflorum* and *Fumaria agraria* (Phytol. iii. 328) are announced as British plants by Mr. Mitten, in the 'London Journal of Botany,' for October; and particulars respecting



them may be seen in the 'Phytologist' for the succeeding month, as above referred to.

*Carex bryzoides* has been reported wild in Britain, but no sufficient notice of its locality has hitherto reached the 'Phytologist.' Nor, indeed, can we say whether there is anything better than newspaper authority for its existence with us.

The following additional localities are of considerable interest:—

*Adiantum Capillus-Veneris.* Phytol. iii. 11. Mr. H. E. Smith records this fern as growing on the Peak of Derbyshire. This inland habitat is very singular, and I should be much gratified at receiving confirmation of the fact.

*Linaria supina.* Phytol. iii. 29. Mr. Westcombe records the occurrence of this species at Hayle, in Cornwall, thus adding a second county to its geographical range in this country.

*Filago gallica.* Phytol. iii. 48. Recorded by Mr. Watson as found by Mr. Varenne near Berechurch, Essex. Long recorded as British, but few botanists had ever seen a British specimen.

*Carex punctata.* Phytol. iii. 57. Found near Charlestown, Cornwall, by Mr. Westcombe. Recorded only from Caernarvonshire and Guernsey previously.

*Filago apiculata.* Phytol. iii. 269, 310, 317. The first notice of this plant as a distinct species, appeared in the 'Phytologist' for 1846 (Phytol. ii. 575), with a description by the Rev. G. E. Smith, to whom English botanists are indebted for having their attention called to its claims to specific distinction. The correctness of Mr. Smith's view appears now in a fair way towards being generally recognized and admitted. The plant occurs in various counties, although reported only from Yorkshire previous to 1848.

In conclusion, I beg again to offer my warmest thanks to those

contributors and subscribers to whom I am so much indebted, and without whose cordial co-operation my exertions would be altogether futile. Far be it from me to insist on the value of these exertions, or to claim any kind of merit for the display of botanical acumen in my selection of papers for this journal. My motto has ever been "the smallest contribution thankfully received," and on this principle have I uniformly acted, accepting with eagerness the humblest addition to the stores of science. I firmly believe that this is the true principle of progress; and I hope that no British botanist, from John O'Groat's to the Land's End, will hesitate to record his observations in the fear that they may be judged unworthy of insertion.

EDWARD NEWMAN.

9, Devonshire Street, City,  
December, 1848.

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# THE PHYTOLOGIST.

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*On the Equisetum fluviatile of the 'London Catalogue of British Plants.'* By HEWETT C. WATSON, Esq.

THE position of "*Equisetum fluviatile*" among the "Excluded Species" of the 'London Catalogue' may prove a puzzle to other botanists, equally as to the reviewer of that Catalogue, in the December number of the 'Phytologist' (Phytol. ii. 1051). And since this position of the *Equisetum* in question has been selected by the reviewer as an instance of occasional inaccuracy in the said Catalogue, it may not be amiss to offer the explanation which seems to be required, in connexion with the reviewer's remarks thereon.

Readers of the 'Phytologist' are well aware that English botanists long habitually applied the name "*fluviatile*" to that species of *Equisetum* which is now currently designated "*Telmateia*." This error was pointed out by continental botanists, and subsequently corrected by Newman in the former volume of the 'Phytologist' (Phytol. i. 534), and the 'History of British Ferns' (p. 52). In making the correction, Mr. Newman did not discard the name of "*fluviatile*" wholly, but transferred it to that other species which most English botanists still know under the name of "*limosum*." The propriety of this transfer, however, is yet not acquiesced in by some botanists, who are among those most likely to have considered the subject.

In the first edition of the 'London Catalogue' the name "*Telmateia*" was adopted from Newman in place of "*fluviatile*." This latter name was in consequence wholly omitted; that of "*limosum*" being retained for the plant which most English authors had so designated in their works. In editing the second edition of the same Catalogue, the question again came before us, whether the name of "*limosum*" should be retained, in accordance with the usage of English authors generally, or whether the name of "*fluviatile*" should be adopted from Newman, instead of the former. In the second edition of the 'British Ferns' (p. 51), the two names are treated as synonyms, that is to say, as meaning one single species which is barely distinguishable into two very slight varieties, the branched and the un-

branched ; — varieties which pass insensibly one into the other. But nevertheless a sort of contradiction of his own view is given by the same author in the prefixed Synopsis (p. 7). And there are other and stronger reasons for avoiding the change at present, in addition to Mr. Newman's own state of doubt about the plants.

In a more recent publication on British plants, the second edition of Babington's Manual, we find a different application of the name "fluviatile" (of "Linneus"); where it is used for a plant distinguished from the *Equisetum limosum* (of "Linneus") by other characters than the presence of branches. And the author of the Manual mentions the plant so distinguished, and so named, as one that is only reported to be native. Apparently he had seen no British specimen. Neither had Mr. Dennes or I seen any examples of it. According to Fries the true *Eq. fluviatile* (*Linn.*) and *Eq. limosum* (*Linn.*) are two readily distinguished species, although usually deemed varieties of one. And it is these two alleged different plants which are intended by those names in the second edition of Babington's Manual, and in the second edition of the 'London Catalogue.'

After this explanation, I trust it will appear that the reviewer was right in saying that *Equisetum fluviatile* was "not unadvisedly" placed among the "Excluded Species" of the 'London Catalogue.' It is there entered in the following manner, which is important to the defence or explanation :—

'fluviatile, "*L.*"——?'

The use of inverted commas ("*L.*") was of course intended to show that we gave the name on some authority, and not as an ascertained fact to which we could ourselves certify. And the addition of the note of interrogation (the use of which, when so applied, is explained in the Catalogue) signified that the species is one "not clearly ascertained to occur in the British Islands." With respect to authority for the name, we have the very high one of Fries, endorsed (as the Americans say) by Babington. And with respect to the nativity of the plant in Britain, we were surely entitled and called upon to place among the doubtfuls any alleged species of *Equisetum* which was apparently unnoticed by Newman in 1844; which, in 1847, Babington vaguely mentions only as one reported to be native; and of which neither of us, the editors of the Catalogue, had seen an example. If, as stated by Fries, *Eq. limosum* and *Eq. fluviatile*, both of Linneus, are two distinct species, it must still remain to be ascertained satis-



factorily whether *both* do occur in Britain, or whether only *one* of them does so occur,—and, in this latter case possibly, even to *which* of the two species our well-known plant should be referred. Meantime, the generally adopted name of “*limosum*” was still retained for our generally known species; and the name of “*fluvatile*” was used for the dubious plant, in conformity with Babington’s Manual. I have abstained from interrupting the continuity of my own explanation by the introduction of quotations, but it may be well to subjoin here the three following extracts from the authors mentioned, by way of completing that explanation, which would be left less intelligible without them:—

FRIES.—“*E. limosum* L. et *fluvatile* L. utique nimis affinia sunt sed apud nos (circa Upsaliam vulgaria) facile discernuntur et a nullo Botanicorum Suecorum, ad prisca contrahenda, quam nova distinguenda promptiorum, conjuncta. Ut pateat an nostra cum exteriorum prorsus convenient utruque dedimus in H. N. XI.” (Summa Vegetabilium Scandinaviæ, p. 251).

BABINGTON.—“*E. limosum* (L.)” . . . . . “*α. limosum*; teeth of the sheaths *not furrowed*, sheaths of the branches green with minute black tips to the *round-backed ribs*, branches often wanting. *E. limosum* Fries, *β. fluvatile*; stem more deeply furrowed, teeth of the sheaths short dark brown acute: *rib furrowed on the back*. *E. fluvatile* (L.) Fries.—In stagnant water. [*β. Reported to be a native*].” (Manual, p. 404).

REVIEWER.—“In getting up Catalogues of this kind two things are to be considered: *first*, accuracy; *secondly*, intelligibility: we conceive both of these are achieved in an eminent degree in the publication before us, yet in some cases we detect a little departure from rigid accuracy, not unadvisedly, but from some motive of expediency, which the authors, had they space, would doubtless explain; for instance, take the last species in the rejected list, *Equisetum fluvatile*, a common English plant, to which Linneus and all continental authors apply this name. A foreigner must suppose that the well-known *Equisetum fluvatile*, so common on the continent, has been recorded as an inhabitant of Britain, but that Messrs. Dennes and Watson having found that record incorrect, expunge the name: they would have no idea that it is only the Linnean *name* that is struck out, the *plant* being one of our commonest species.” (Phytol. ii. 1051 *et seq.*).

I cannot see that a foreigner would be entitled to “suppose” the case above suggested for him by the reviewer; and for the very suffi-

cient reason that the facts of the case are otherwise, and are so stated as clearly as the general plan of the Catalogue would admit in the individual instance. The retention of *E. limosum* in the general list of the 'London Catalogue' should show that our common plant, so commonly mentioned by that name, is held a true native; while the position of *E. fluviatile* among the "Excluded Species," with the inverted commas ("L."), and the added note of interrogation (?), should show also that something more than a mere name was intended to be quoted and queried. The latter is the *plant* mentioned under the same name by Fries and Babington, concerning which some more satisfactory information seems required before we can introduce it into our list of certainties.

*Equisetum limosum* (Lond. Cat.) = *E. limosum* of Smith, Hooker, Babington, &c.; *E. fluviatile* of Newman.

*Equisetum fluviatile* (Lond. Cat.) = *E. limosum*, *β. fluviatile* of Babington; *not E. fluviatile* of Newman.

HEWETT C. WATSON.

Thames Ditton, December 4, 1847.

*Notice of the 'London Journal of Botany,' Nos. 69 to 72, dated September to December, 1847.*

No. 69. Contents: "Contributions towards a Flora of Brazil, being the Characters of several new Species of Compositæ, belonging to the tribes Mutisiacæ and Nassauviacæ," by George Gardner, Esq. "Botanical Characters of a new Plant, *Isonandra Gutta*, yielding the Gutta Percha of Commerce," by Sir W. J. Hooker. "Botanical Information," including a notice of Miers's *Illustrations of South American Plants*; a notice of Pritzel's '*Thesaurus Literaturæ Botaniciæ*;' advertisement or notice of an herbarium of French plants on sale; continuation of the list of Mr. Thomas Lobb's Malayan (Java) Plants; notes on Plants of the British Flora, namely, *Calamagrostis stricta* (Nutt.), *Phalaris utriculata* (Linn.), *Allium sphærocephalum* (Linn.), *Simethis bicolor* (Kunth), and *Trifolium strictum* (Linn.); Tussack Grass; Notes of a Continental Tour; Excursion to Mount Olympus, Van Diemen's Land, by R. Gunn, Esq.; Boissier on Spanish Botany; *Myosurus cristatus* (Benth); Two new Species of *Peperomia* described by Professor Miquel; '*Floræ Tasmaniæ Spicilegium*,' by Dr. J. D. Hooker.

Nos. 70 to 72. Contents: Continuation of Dr. Hooker's '*Floræ*

Tasmanniæ Spicilegium ; 'Decades of Fungi,' by the Rev. M. J. Berkeley. "Prodromus Monographiæ Ficuum," by Professor Miquel. And the same Monograph is continued wholly through No. 71 and part of No. 72. The latter part of No. 72 being occupied by a paper "Sur la Famille des Linées," by Dr. Planchon.

When any copy of the 'London Journal of Botany' chances to fall under our eyes, on the table of a subscriber, we usually find that portion of it which includes the miscellaneous articles, under the head of "Botanical Information," to be the only portion which has been looked into. The large remainder is usually in that undisturbed state which the vendors of old books so much delight to announce, namely, with pages "uncut." We presume that two circumstances may be taken into account for an explanation of this difference. Most of the other articles, albeit often valuable contributions to botanical science, are still those long and heavy papers on descriptive botany which are rather out of place in a journal, and which are seldom looked at by the readers of periodicals. The "Botanical Information" contains those announcements, on the other hand, for which almost only is a periodical taken and read. Botanists turn to the pages so intituled, because in those pages they expect the intelligence which they wish to have, and which it is usually understood to be the province of a journal to supply them with. This is the first circumstance which causes the pages in question to be cut open, while the rest are neglected. The second circumstance to which we allude is, that the words "Botanical Information," in the table of contents, convey no intimation whatever of the items or kind of intelligence to be found under that general title ; and it is thus rendered necessary that the pages should be cut, in order to discover the subordinate titles or subjects of the "Information." We wish the learned editor would take the hint thus offered, and increase the usefulness of his useful periodical by acting upon it. First, we could wish that he would give, in the table of contents, the title or subject of each separate article. Secondly, we should be glad to see more news of what is doing in the botanical world ; and for this we should be well content to lose any quantity of descriptions of species. The four Nos. of the 'London Journal of Botany,' now before us, contain 160 pages of letter-press, equal to about 100 of the large pages of the 'Phytologist.' Of these 160 pages no less than 128 are devoted to three articles, the object of which is to describe species, and all three of which are still only portions or continuations of longer articles on the same subjects. This is, in truth, printing books in fragments, under the cover and

title of a monthly Journal. The three articles are important contributions to science, undoubtedly of high merit in themselves, and include only matters proper and necessary to be recorded. But nevertheless, we submit, they are not the kind of articles which are looked for by subscribers to a periodical. A good description of the Plants of Van Diemen's Land, for example, in a volume or series of volumes, as a distinct work, would be now a very valuable contribution to the literature of botany; but broken up into incomplete fragments, detached from each other by the miscellanies of a periodical, the list appears in a most inconvenient form itself, and seems greatly out of place. We give these hints in a spirit of friendliness to the 'London Journal,' which we would gladly see rendered as much as possible a full and undiluted *Journal* of botany: at present, it is a Miscellany (the original title) of high value, but scarcely a Journal.

Among the "Botanical Information" in Number 69 are some items of intelligence which will have interest for the devotees of British botany. We are there assured that the *Calamagrostis stricta* from Oakmere, Cheshire, "is identical with the Forfarshire plant, found by the late Mr. G. Don," and "quite distinct from *C. lapponica*, of which the only British station is in the county of Antrim, Ireland." By some inadvertence (arising, we understand, from the hasty inspection of an imperfect specimen), Mr. Hussey's discovery of *Phalaris paradoxa*, "in a field, near Swanage, Dorset," is announced for another species, or rather genus, the *Alopecurus utriculatus*, placed by Linneus under the genus *Phalaris*. The two grasses resemble each other in their peculiarly inflated sheaths or bases of the leaves, and when the upper portion of the dense panicle of *Phalaris paradoxa* happens to be lost by breaking off, there is truly a close eye-sight resemblance between them, dissimilar as they are found to be on closer examination of the flowers (see *Phytol.* ii. 961). The discovery of *Simethis bicolor* (*Kunth*) in Hampshire, and of *Allium sphærocephalum* (*Linn.*) near Bristol, were announced simultaneously in the 'Phytologist' (see *Phytol.* ii. pp. 926 and 961). The other British plant mentioned is the *Trifolium strictum* (*Linn.*), discovered in two localities in Cornwall, by the Rev. C. A. Johns; from whose pen there is an interesting note on this one along with other small leguminose plants of that county.

Dr. Planchon's article on the Linacæ is elaborately worked out, and is rendered somewhat remarkable by the addition of a large table in which the geographical distribution of the species is shown under

various conditions of latitude and longitude, and of botanical and geographical grouping, in an ingenious and comprehensive manner, and which must have demanded considerable patience and knowledge in the author of the paper.

C.

#### DUNDEE NATURALISTS' ASSOCIATION.

*Monday, Dec. 6th, 1847.*—Mr. George Lawson, President, in the chair.

Mr. Jackson presented for examination specimens of the following plants that had been sent him for the Association, by Mr. Alexander Croall, and some interesting notes by Mr. Croall on the various species were read.

*Pinguicula alpina*, L. From the Moors of Rose-haugh, in Ross-shire. From Mr. Croall's note accompanying the specimen, it would appear that this very rare and interesting plant is on the point of extermination, in consequence of the progress of cultivation in the district where it grows.

*Bartramidula Wilsoni*, Bruch & Schimper. From the head of Glen Dole, Clova, Forfarshire (see Phytol. ii. 1017).

*Gymnostomum Donianum*, Sm. From Cawdor burn, Nairnshire.

*Placodium plumbeum*, Ach. From trees in Cawdor wood, Nairnshire.

Mr. Lawson exhibited specimens of *Cyphella muscigena*, Fr. (determined by the Rev. M. J. Berkeley), from the Den of Mains, and Mr. Ogilvie produced several lichens from the same locality.

The following botanical papers were read :—

1. Account of a botanical excursion to the Reeky Linn, by Mr. William Jackson. Amongst the plants found by Mr. J. in the immediate vicinity of the Falls, occur the following: *Bryum crudum*, *B. turbinatum*, *B. julaceum*, *B. androgynum*, *Hypnum commutatum*, *H. complanatum*, *H. dendroides*, *H. filicinum*, *H. atro-virens*, *H. pulchellum*, *Didymodon Bruntoni*, *Trichostomum aciculare*, *T. polyphyllum*, *Bartramia pomiformis*, *β.*, *B. Halleriana*, *B. gracilis*, *Dicranum scoparium*, *Grimmia rivularis*, *G. apocarpa* (and var. *β. stricta*), *Neckera crispa*, *Cinclidotus fontinaloides*, *Tetraphis pellucida*, *Anomodon viticulosus*, *A. curtipendulum*, *Orthotrichum affine*, *O. crispum*, *Jungermannia epiphylla*, *J. pubescens*, *J. Lyoni*, *J. ciliaris*, *J. nemorosa*, *J. platyphylla*, *J. albicans*, *J. Blasia*.

2. List of the rarer flowering plants observed in the county of Fife,

by Mr. George Lawson. Specimens were exhibited of the principal plants in the list,—and Mr. Lawson made some remarks on the nature of some of the localities mentioned.\*

Robert Huish, Esq., London, was elected an honorary member. Mr. Thomas Simpson, Beadle, Yorkshire, was elected a fellow. Mr. David Gorrie, Annat Cottage, Eurol, Perthshire, was elected a corresponding member.

GEORGE LAWSON, P.

212, Perth Road, Dundee,  
December, 1847.

#### BOTANICAL SOCIETY OF LONDON.

*Monday, November 29th, 1847.*—Eleventh anniversary meeting. John Reynolds, Esq., Treasurer, in the chair.

Donations of British plants were announced from the Rev. G. W. Sandys, Mr. J. D. Salmon, Mr. John Ray, and Mr. French.

The Secretary read the annual report of the council, from which it appeared that thirty-two members had been elected since the last anniversary, being a larger number than had been elected in any previous year since the establishment of the Society. In order to carry out to its fullest extent the leading object of the Society, namely, the exchange of specimens, the herbarium-committee had used every exertion to obtain the rarer and more interesting plants, and numerous valuable specimens (including a large number of duplicates) had been received, and would shortly be distributed to the members. The council had deputed Mr. Hewett Watson and the Secretary to prepare a second edition of the 'London Catalogue of British Plants.' The report was unanimously adopted. A ballot then took place for the council for the ensuing year, when J. E. Gray, Esq., F.R.S., was re-elected President, and John Miers, Esq., F.R.S., and E. Doubleday, Esq., F.L.S., were nominated Vice-Presidents; J. Coppin, Esq., M.A., G. W. Francis, Esq., F.L.S., and J. Parking, M.D., were elected new members of the council in the room of Dr. Cooke, F.L.S., F. Barham, Esq., and J. M. Rich, Esq., who retire in rotation; Mr. J. Reynolds, Mr. G. E. Dennes, and Mr. G. Rich, were respectively re-elected, Treasurer, Secretary, and Librarian.—*G. E. D.*

\* The list will appear in an early number of the 'Phytologist.'

*A List of Rubi observed near London in 1846-7, with Observations.*  
By THOMAS MEEHAN.

THE geographical distribution of the various forms of British Rubi being as yet imperfectly understood, it occurred to me to make notes of the habitats of those I might meet with in my botanical excursions, and to offer them to the readers of the 'Phytologist.' The following list comprises all that I have observed for the two last seasons, but my opportunities of collecting have been few, and I have no doubt that a closer examination would discover many which are not inserted in my list, and prove Surrey especially to be as rich in Rubi as Sussex and Hampshire proverbially are. I may also add that several forms are not included, because I was not in a position to determine them with accuracy.

*R. Idæus* (L.). Weybridge, and many parts of West Surrey.

———— *β. trifolius* (B. Salt.). Esher Common.

— *suberectus* (Ands.). Wimbledon Common.

— *nitidus* (W. et N.). Woods, Dorking.

— *corylifolius* (Sm.). Surrey; Middlesex plentifully.

— *cordifolius* (W. et N.). Wimbledon; Bagshot; Dorking.

— *discolor* (W. et N.). Abundant everywhere.

— *leucostachys* (Sm.). Ealing; Esher; Dorking.

———— *β. vestitus* (B. Salt.). Woods, Wimbledon and

Dorking.

———— *γ. argenteus* (B. Salt.). Mortlake.

— *carpinifolius* (W. et N.). Wimbledon Common.

— *macrophyllus* (W. et N.). Ealing; Chiswick.

— *rudis* (W.). Wimbledon Common.

— *Radula α.* (B. Salt.). Hedge near Egham.

— *fusco-ater* (W.). Acton.

— *Kœhleri* (Weihe).

———— *ε. fuscus* (Bab.). Near Esher.

— *hirtus* (W. et N.). Road-side between Wandsworth and Wimbledon Common.

— *glandulosus, γ. rosaceus* (Bell Salt.). Wimbledon Common.

— *Wahlebergii* (Arot.). Foot-path between Brentford and Ealing.

— *cæsius* (Linn.). Plentiful in hedges.

The above nomenclature is that adopted by Babington in his Synopsis.

*R. corylifolius* presents various appearances in different situations.

There are several forms of *R. discolor* in this part of Surrey, but I confess I can make nothing of them. *R. rosaceus* and *hirtus* are not plentiful.

It is to be regretted that so much indisposition to study this genus of British plants should exist. Perhaps few tribes afford such abundant opportunities of examining the vexed question of the nature of species as this, and yet this very fact is made an objection to their study! "They are so changeable," is a common expression, "my opinion is that there is not a dozen good species," is generally the encouraging stimulus the student of Rubi receives. But the question still remains, what is a species? and what is a variety? I do not clearly understand what Mr. Babington's ideas of species and varieties are, as exemplified in his Synopsis. I believe that the varieties of the Synopsis are principally dependent on their aptability to *approach* some other (normal) form when growing in the same soil and situation with it. I believe this was the reason for deciding *R. vestitus* of the 'Rubi Germanici,' and *R. villicaulis* of Babington's Manual, as mere varieties of *R. leucostachys* (Sm.). I find this "var." *argenteus* growing in a wet ditch by the side of the Thames at Mortlake, and exactly agreeing with a specimen gathered in a dry wood near Ryde. If *argenteus* is *R. leucostachys*, and merely varying through difference in its place of growth, whence the circumstance I have related? or will different situations produce the *same* result?

We gardeners, who are in the habit of raising seedlings of florists' flowers, generally understand a variety to be a form produced from seed, and capable of reproducing seed, differing in some respects from its parent, in contradistinction to a mule or hybrid, which is not capable of reproducing seed. If this be the true definition of a variety, can these so-called varieties of Rubi be considered as truly such? The various varieties of the apple, the gooseberry and other fruit-trees still retain their several characteristics, although grown in the same soil and situations together, and why should not *true* varieties of Rubi?

THOMAS MEEHAN.

Kew, December 17th, 1847.



*Occurrence of Adiantum Capillus-Veneris in Derbyshire, Asplenium germanicum in Borrowdale, and Lycopodium annotinum on Bow-Fell.* By H. ECROYD SMITH, Esq.

SOME of the readers of the 'Phytologist' may be interested in hearing of the following localities for one or two of our rarer ferns.

On recently revising my *hortus siccus*, I was reminded of a habitat of that rare and lovely little species *Adiantum Capillus-Veneris*,—at once novel, singular, and interesting (at least, as regards Britain), *viz.*, the Peak of Derbyshire. I believe it had not been previously noticed except in sea-caves on the coast of two English counties, Devon and Cornwall; but here we meet it under a peculiar aspect, flourishing in the very heart of the island, and in a wild and bleak situation. I found the plant in 1844, and though only seedlings were obtained, others-matured, may be ready to repay a more diligent search than I was able to undertake at the time.

The *Asplenium germanicum* has been noticed in my present neighbourhood; and, as far as I am aware, this is the first recorded English locality. It was found in the summer of 1846; by Wm. Greaves and Jos. Flintoft, the latter of whom executed the celebrated model of the Lake District; it was growing in the cleft of a rock in the wilds of Borrowdale.

On a recent visit to Bow-Fell I met with *Lycopodium annotinum* in several places on its sides, where the rocks are heaped in the greatest confusion, and twining among shady boulders carpeted with *Hymenophyllum Wilsoni*.

H. ECROYD SMITH.

Bay Cottage, Ambleside,  
December 23rd, 1847.

*On the Organogeny of irregular Corollas.* By F. BARNEOUD. Extracted from the 'Comptes Rendus' for August 16, 1847, as translated in the 'Annals and Magazine of Natural History' for December, 1847.

IN the memoir which I have the honour of submitting to the Academy, I have described the results of further researches on the organogeny of irregular corollas. I shall briefly indicate the principle in this abstract. In the monocotyledons the study of the develop-

ment of the flower of the Cannæ afforded direct proof that the stamina only metamorphosed into petals in a more or less complete manner from their first appearance, which impart to the corolla its irregular aspect. The two outer ternary verticils are always developed *one after the other*, precisely as the calyx and corolla of dicotyledons. This law, which I have verified in more than ten families, appears to be very general among monocotyledonous plants. In the dicotyledons, the adult corolla of the Acanthaceæ, Globulariæ, Gesneriaceæ, Bignoniaceæ and Goodeniaceæ, which is frequently far from regular, presents itself on its first appearance in the form of a small cupule with five very equal and rounded teeth at the border, but this state is more or less ephemeral according to the genera and species. Very soon the unequal elongation of the divisions of the corolla, their different degrees of adhesion or their partial atrophy, determine a very marked irregularity. The same applies with respect to the flower of *Centranthus* in the Valerianæ, to that of the Lobeliaceæ and of the Scrophulariaceæ. In this last family the corolla of the Calceolariæ, one of the most anomalous of the vegetable kingdom, is reduced at its origin to a scooped-out cupola, which is very regular and furnished with four equal minute teeth; the nascent calyx likewise presents but four divisions.

The highly remarkable floral envelope of Begoniaceæ likewise appears, at the period of its formation, as regards both male and female flowers, in the form of a continuous ring, and exhibits at its circumference five very equal small segments; but there are some of them, especially in the male flowers, which disappear entirely or which become in part atrophied, so as to give to the coloured envelope that peculiar structure which forms its principal character.

From the facts detailed in my two memoirs and derived from the study of genera with irregular flowers from twenty-five natural families, I feel justified in deducing the following consequences:—

1. The simple theory announced by DeCandolle as early as 1813, according to which the irregular flowers should be referred to regular types from which they appear to have degenerated, must be admitted as true, although conceived *à priori*, and solely from the attentive examination of some cases of *Peloria*, or of flowers which have become regular at the adult age. But if in the actual state of science, organogeny affords us a direct demonstration of this important principle of botanical philosophy, I must add, that the symmetry of an irregular flower even at its very origin does not always strictly exist; it is frequently merely indicated by empty places where the absent organs

are never developed, as is very readily seen with respect to the stamina of those plants. We may therefore infer among the ordinary causes of disturbance in the floral symmetry, such as abortion, multiplication, degenerescence and adhesion, likewise that of the nondevelopment of organs.

2. With respect to the origin of the union of the stamina called monadelphous, diadelphous, polyadelphous and synantherous, their adhesion is always subsequent to their first formation. The family of the Stylidæ (*Stylidium adnatum*) alone appears to me to furnish a remarkable exception to this rule as regards the adhesion of the styles.

I shall here enumerate three principal kinds of irregularity among all irregular corollas that I have examined:—

1. Irregularity by simple inequality of development among the several segments of the corolla, with complication of adhesion or complete atrophy or arrest of growth; this is the most common.

2. Irregularity by deviation, where the segments, although equal, turn all of the same side; for instance, the corolla of *Scævola levigata* (Goodeniaceæ), and the genera with ligulate florets of the Compositæ.

3. Irregularity by simple metamorphosis of the stamina, as in the family of the Cannæ, and probably that of the Zingiberaceæ.

#### TYNESIDE NATURALISTS' FIELD CLUB.

IN accordance with an invitation of the Berwickshire Naturalists' Field Club, the last meeting of the Tyneside Club for the season was held at Alnwick, on Wednesday, September 22, in conjunction with the former Society. A few of the members of the Durham Botanical Society also joined the party. The members present breakfasted with Mr. Dickson, the Clerk of the Peace for Northumberland, after which they proceeded to the Castle, when, after spending a short time, they assembled at the Swan Inn for the transaction of business. It being the anniversary meeting of the Berwickshire Club, the annual address of the President of that body on his retirement from office was read, and his successor was elected. There were no long papers read or presented by either society. Mr. Selby, of Twizel House, read a short notice of the occurrence of some birds and insects in greater abundance than usual, during the last year. Amongst

other insects he mentioned the death's-head hawk moth and the Convolvulus hawk moth. Of the former he had procured several caterpillars, but had not been able to rear any moths. He mentioned that when he was unable to procure potato leaves, on which plant the death's-head moth is usually found in this country, he had substituted those of a plant of the same genus, the common nightshade or bitter-sweet of the hedges (*Solanum Dulcamara*), and found that the moth fed as freely on it as on the potato. Mr. Selby described a caterpillar as large as that of the death's-head moth, but differing from it in colour and in the shape of its markings, which he had also found on the potato. This caterpillar he thought might be a variety of that of the death's-head moth, but he had not been able to meet with any account of that species in which such a variety was described, nor was he aware of any other species to which it could be assigned.—Mr. Alder, of Newcastle, read an account of the peculiar character of the animal of *Kellia suborbicularis*, a bivalve mollusk, not uncommon on our shores, showing it to be a new type of form among the bivalves, differing from the others in having a large anterior tube. He also exhibited a drawing, and read a description of the animal of *Lepton squamosum*, an allied genus, likewise very peculiar in its characters. He took the opportunity of Dr. Johnston being present, to draw his attention to a curious new British zoophyte, of very anomalous characters, found by Mr. Cocks, at Falmouth, and examined by Mr. Alder, in conjunction with that gentleman, during a recent visit to Cornwall. A drawing of the animal was exhibited to the meeting, and a verbal description given. Some account of its mode of development was also communicated. Dr. Johnston considered it quite distinct from anything with which he was acquainted. Mr. Tate, of Alnwick, exhibited several specimens of mountain-limestone fossils, remarkable for their perfection and beauty. This gentleman possesses one of the best collections of the fossils of this formation in the kingdom. After the business-matters were concluded, and the rain had ceased, which fell heavily during the middle of the day, some of the party returned to the Castle, where they had spent a portion of the morning, and where, by the courtesy of the noble owner, every facility was given for the examination, both of its feudal remains and of its modern decorations. There is a small museum containing objects of antiquity as well as specimens in most of the departments of Natural History; amongst the latter are some very interesting fossil remains. The most remarkable part of the collection, however, is that containing the Egyptian antiquities, obtained by the noble Duke

himself when in Egypt. On leaving the Castle the party had a short walk through the park, and then returned to the White Swan, where they sat down to an excellent dinner, to which the thoughtful courtesy of the Duchess had added a splendid dessert. The only business transacted after dinner was the election of three new members to the Berwickshire Club, and the proposal of a vote of thanks on the part of the three Clubs to the Duke and Duchess of Northumberland for the attention they had shown to the meeting. The invitation from the Berwickshire Club was made for "the promotion of friendly feelings" between the Clubs, and when the party broke up, which it did at an early hour, every one felt that the intended object had been attained.

[The Editor is aware that this Report is chiefly zoological, but he is desirous of continuing the series of Reports from provincial associations, hoping that good will result from them].

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*Notice of the 'Transactions of the Linnean Society of London,' Vol. xx., Parts 1 and 2.*

THESE two parts of the Transactions are peculiarly rich in Botany, no fewer than eleven of the seventeen papers being on botanical subjects. Unfortunately, however, though exceedingly valuable in themselves, these papers all relate to exotic plants, and consequently possess less interest for the British botanist than is sometimes the case when the plants of our own country are treated of: but an abstract will not be out of place in the pages of the 'Phytologist.'

I. *On the Development of the Ovulum in Avicennia.* By the late William Griffith, Esq., F.L.S., &c.

A companion paper to the previous communications by the same botanist upon the development of the seed and embryo in *Santalum* and *Osyris*; the subject is, however, too intricate to be fully understood without reference to the illustrations. Mr. Griffith states that he was unable clearly to ascertain "the absolute relations with the embryo-sac established by the pollen-tube after it had reached the sac, still less the absolute relations which the end of the pollen-tube bore to the nascent embryo;" he is, however, induced to believe, from the indications furnished by his sketches, that the pollen-tube penetrates into the sac, "as far as the spot in which the embryo makes its first appearance."

III. *Descriptions of some unpublished Species of Plants from North-western India.* By M. Pakenham Edgeworth, Esq., F.L.S., Bengal Civil Service.

During a residence of several years in the north-west provinces of Bengal, Mr. Edgeworth collected with his own hands about 2000 species of plants. Of these the Acanthaceæ were sent to Professor Nees von Esenbeck; the Gramineæ to Messrs. Ruprecht and K. von Meyer; the Carices to Dr. Boott; and with these exceptions, and that of the Corolliflora from Bignoniaceæ onwards, which were forwarded to De Candolle, the remainder of the collection was placed in the hands of Mr. G. Bentham. One hundred and forty-four species are described in the present paper, including some remarkable forms, "as, for example, a Clematis with bearded filaments and introrse anthers; an Inula with white flowers and the habit of an Aster; and a Commelyneous plant with a twining stem:" this is figured under the name of *Streptolirion volubile*, and is a very curious and beautiful species. Others of Mr. Edgeworth's new plants are remarkable as being Indian species of genera hitherto looked upon as exclusively American.

The following remarks, relating to a naturalized British genus, are interesting, and may be quoted entire.

"I have ventured to propose a modification of the character of *Impatiens*, because I consider M. Kunth's theory of the flower to be not entirely correct. He conceives the superior petal to be wanting, and the two superior sepals to be united into the vexillum, regarding the keel usually more or less present on that to be a mark of the junction. But I have found the two superior sepals actually present in some species; they are distinct in *I. amplexicaulis* and *moschata*, herein described, and even more so, though still very minute, in the Cashmir species introduced into England by Dr. Royle under the name of *I. glanduligera*, and figured by him in his '*Illustrations of Himalayan Botany*.' In other species, a rudimentary scale, or in others, again, a gland, supplies their place; while in many I have been totally unable to detect any. I think, therefore, that I am justified in considering the vexillum as a single petal, and not as composed of two sepals united. I have since found that a similar view has been taken by M. Rœper, in the '*Linnaea*,' ix. 121."—p. 37.

The generic character of *Impatiens*, as proposed by Mr. Edgeworth, now stands as follows:—Sepals 5; the two upper ones small, sometimes wanting; two lateral simple; the lower one larger, more or less inflated and spurred. Petals 5; upper one between the two

scale-like sepals, large, generally crested on the back (*vexillum*); 4 lateral, two of which on each side cohere and form a bilobed wing.

In a foot-note to *Cuscuta anguina* it is stated that "This name is given in allusion to a superstition of the mountaineers, that crows are in the habit of plucking off sprigs of this and *C. macrantha*, and dropping them into running water, when the sprig becomes a serpent, and fit food for the crow. They likewise imagine that the possession of the *root* of the *Cuscuta* confers the power of invisibility, and of passing through locks, bars, and doors unhindered."

IV. *On the Indian Species of Balanophora, and on a New Genus of the Family Balanophoræ.* By the late William Griffith, Esq., F.L.S., &c.

We have before mentioned the Balanophoracæ as a family of Rhizogens (Phytol. ii. 717 &c.); in this paper Mr. Griffith describes five Indian species of the genus from which the family derives its name: he however seems to have felt considerable hesitation in referring these plants to the genus *Balanophora*; they would indeed appear more properly to belong to Dr. Wallich's genus *Sarcocordylis*, which we should hesitate about admitting into the Rhizogens at all. The new genus is named *Phæocordylis*; being diclinous, and the male unknown, the generic character has been drawn up from the female. Its general anatomy would appear to correspond with that of *Balanophora*; its parasitism is also similar; its principal generic distinction appearing to consist in the presence of a number of paraphysiform processes covering the surface of the spike, in its areolation, the sessile solitary ovaria, deciduous styles, and the subpapillose apex of the fruit.

As Mr. Griffith's observations on these plants are founded upon the examination of extensive materials, they are entitled to great weight; we here quote them *in extenso*, regretting that we cannot also reproduce the illustrative figures.

"All the species agree in having an amorphous tuberiform mass, which may be considered as the common axis. This mass is firmly united to the woody system of the roots of the stock, which are ramified in its substance, the bark ceasing along the places of union. The cellular tissue of the mass adheres firmly to the divisions of the roots, which appear to terminate in an abrupt manner. Some of the specimens look like zoophytes adhering to foreign bodies. This common mass or axis is much lobed; the surface is always more or less, and often to a high degree verrucose, the verrucæ being variously lobed, and having an appearance that suggests the idea of their being

of an excretory nature. Internally the common mass is mainly composed of cellular tissue, the cells in many instances containing nuclei, and often viscid matter. The vascular bundles are many, without any very evident arrangement, except towards the axes or stems, to which they will be found to converge. They are composed of lax fibres, filled (after maceration at least) with grumous tissue, and short, annular, sometimes partly unrollable vessels.

"Within the common mass the buds are developed, being protected during their earlier stages by the superficies of the mass, as well as by their own scales, which are then very closely imbricated. The buds subsequently protrude through the common covering, derived from the superficies of the mass, which remains in the shape of an irregularly torn annulus or wrapper.

"The flower-bearing axes or stems, which appear perhaps generally to be one to each lobe of the common mass, are not isochronous in development. Instead of leaves they present imbricated uncoloured scales. The main bulk of the stem is of nucleary cellular tissue, traversed by longitudinal vasculo-fibrous fascicles, which supply the scales. In the female spikes these are much ramified in the circumference, but they do not, I think, pass into the receptacles or into any of the pistilla.

"The scales have no cuticle or internal cavities, they never present green colouring matter, and are generally colourless and blackened about their points. They are of a fleshy substance, and are provided with several simple vascular fascicles.

"The bractææ, which are only developed in the male spikes, are fleshy, abruptly truncate, and more or less canaliculate. In the species in which they are most so, owing to their lateral edges being partly at least in apposition, the flowers appear enclosed in alveoli; and this is particularly evident after the fall of the flowers, when the head of the spike presents a honey-combed appearance. *Balanophora dioica* would appear to have cyathiform or involucrelliform bractææ; this probably is a mistake. The vascular bundles are obsolete, appearing rather as streaks of discoloured tissue; in them I have only observed fibres similar to those surrounding the vessels in the longitudinal bundles of the axis.

"The perianthium, which exists only in the male, is composed of four or five sepals; if five, the fifth is anticous; their æstivation is valvate, their substance fleshy. I have not detected in them any vascular fascicles, although there is some appearance of their existence within each margin.



"The stamina are completely monadelphous, and, except in *Balanophora polyandra*, are equal in number and opposite to the segments of the perianthium. From having observed certain irregular appearances in the anthers of *Balanophora alveolata*, I think that the type of the anthers of *Balanophora polyandra* may still be reduced to that of the other species. The centre of the antheriferous part of the column has presented one or two large patches of discoloured tissue. The anthers are very large, consisting of two large cells folded longitudinally into the shape of a horse-shoe; they have no endothecal special apparatus; they open longitudinally; their number and structure are best ascertained before dehiscence. The pollen presents nothing peculiar.

"The female stems are, so far as regards scales, &c., like those of the male, but they present no bractæ, although round the base of the head there appears a tendency in some to their development.

"The female spike to the naked eye has a papillose and a subverrucose appearance; under an ordinary magnifier it appears covered with truncate, areolate, opaque bodies, separated from each other by what appear to be hairs. The truncate areolate bodies will be found on examination to terminate small branches of the spike, on which are arranged (and perhaps exclusively so) the pistilla or female flowers, the styloid terminations of which are the hairs alluded to.

"These pistilla are generally stalked, and appear to be entirely composed of cellular tissue, every cell containing a nucleus. The ovarium is generally ovate, and presents externally the appearance of having a cavity containing a nucleus. This would seem to be its true structure, judging from *Balanophora polyandra*. It is gradually attenuated into a style, which, in its earlier stages at least, is closed at the apex, and does not present any surface like that of an ordinary stigma. The tissue before fecundation is transparent and uncoloured; subsequently to that, the style becomes more or less, often completely, obscured by brown colour.

"The ovulum, which was only observed in *Balanophora polyandra*, and probably in its impregnated state, appeared to be pendulous from the apex of the cavity of the ovarium; its constitution was essentially similar to that of the matured embryo. Of its earlier stages I have no knowledge.

"The pistilla at very early periods are mere ovato-conical extensions of the surface of the spike round the bases of larger extensions of the same surface, which subsequently form the receptacles.

"There is very little difference beyond discolouration and a brit-

tleness of tissue between the pistilla of the other species and the fruits of *Balanophora picta*, in which alone I have observed them in their seemingly ripe state; they have nearly the same size and precisely the same disposition.

"The embryo in this species appeared to be free; it is a cellular, undivided, albuminous-looking body, of a fleshy, waxy substance; the cells which compose it are rendered opaque by grumous, molecular and oleaginous matter, which by pressure may be made to escape into the fluid of the field of the microscope in the form of globular bodies of unequal size, which, as I have mentioned, might be mistaken for spores or grains of pollen.

"Obs. III.—The most remarkable parts of the structure of this genus appear to me to be, the extraordinary simplicity of the female flowers, and the remarkable productions of the surface of the spike on which they are arranged.

"From not having observed any change in the numerous pistilla (previously to examining *Balanophora polyandra* and *B. picta*), although the browning of the style, and in some cases adherence of pollen-grains to it, had been distinctly seen, doubts had suggested themselves to me regarding the true nature of the above parts; and these were increased by examinations at very early periods, which did not present any state of the (subsequent) pistilla at all analogous to what occurs perhaps universally in phænogamous angiospermous plants; and also by the permanence and evident importance of the termination of the remarkable receptacles. The same apparent imperfection of the female flowers appears to have struck most observers; and prior to the determination of the point by the examination of the two species alluded to, I was inclined perhaps to consider this remarkable genus as presenting, at least in the specimens before me, an instance of abortion of pistilla, connected with a remarkable gemmiform apparatus.

"The resemblance of the pistilla to the pistilla of Musci, and more especially to those of some evaginulate Hepaticæ, is exceedingly curious and complete; and the same may be said of the effects produced by the action of the pollen on the styles. Indeed, in the development of the female organ, the continuous surface of the style before fecundation, and its obvious perforation after, *Balanophora* presents a direct affinity to a group of plants, with which otherwise it has not a single analogy.

"If these highly remarkable points of structure are borne in mind, I think that it must be conceded that *Balanophora* can in no wise be

associated with such highly-developed families as *Rafflesiaceæ* and *Cytineæ*, which, especially the former, are in my opinion to be taken as exhibiting a highly complex formation of even both sexes.

"OBS. IV.—In the present state of our knowledge the *locus naturalis* of the family to which this genus belongs must, it appears to me, at best be founded on conjecture. The assistance of physiology is in the first place essential. Of all the notions, however, regarding it, that of Agardh, as given by Endlicher and Schott in their *Meletemata*, appears to me the most plausible, although he would seem to include *Cynomorium* in the family, and to make it the typical genus. Although I have not observed these plants to have milky juice, or am inclined to lay much stress on some of the signs of affinity given by Agardh, yet in the separation of the sexes, the valvular æstivation of the perianthium, and the apposition of the stamina to its component parts, there are perhaps some signs of affinity; and although the development of the pistilla of *Balanophora* appears to me an insurmountable objection, still they resemble in texture the pistilla of some *Urticeæ* as much, if not more, than those of any other plant.

"As a mere hypothesis, then, I would consider *Balanophoreæ*, judged of chiefly by *Balanophora*, as the homogeneous embryo form of *Urticinæ*, forming a direct passage in one, and usually the more perfect structure, to *Musci* and *Hepaticæ*. But in this, as in all other very doubtful cases, it is much more advisable to consider them as aliens than to force them into any subkingdom, class or order. As aliens, every observing botanist's eye will be upon them. As undoubted citizens, they may find, under authority, places anywhere, and will certainly cease to be general objects of observation."—p. 96.

V. *On Agaricus crinitus*, Linn., and some allied Species. By the Rev. M. J. Berkeley, M.A., F.L.S., &c.

Among the few though well preserved and interesting Fungi contained in the Linnean herbarium, is one marked *Agaricus crinitus*, a species correctly described, but much misunderstood. In the present memoir Mr. Berkeley describes and illustrates this and four other species under the generic name of *Lentinus*. The plate containing the figures and anatomical details of these species is from the delicate pencil of Mr. J. de C. Sowerby, and beautifully engraved by Jarman. The species are *Lentinus crinitus*, from South America; *L. tener*, Organ Mountains and New Orleans; *L. Schomburgkii*, British Guiana; *L. nigripes*, described by Fries in the '*Systema Lentinorum*,' and now figured for the first time; and *L. Leveillei*, Surinam.

VI. *Caricis Species novæ, vel minus cognitæ.* Auctore Francisco Boott, M.D., S.L.S., &c.

In this elaborate memoir fifty-one species of *Carex* are fully described : they are all exotic, though many of them seem to be closely allied to British species.

VII. *Remarks on the Examination of some Fossil Woods, which tend to elucidate the Structure of certain Tissues in the recent Plant.* By Edwin John Quekett, Esq., F.L.S., &c.

The structure of spiral vessels and the nature of the markings on the woody fibre of the Coniferæ, having excited numerous controversies, Mr. Quekett here gives in detail the results of his microscopical examination of these structures in a fossil state, which go far to exhibit their real nature, and are calculated to be generally interesting to the vegetable physiologist. The first-described shows that the spiral fibre is developed *within* the membranous cylinder with which it is always associated.

"On examining lately a specimen of fossil wood, exhibiting the structure of a palm, I discovered a portion which, instead of being compact like the general mass, broke down on the slightest pressure into minute fragments : on submitting these to the microscope, it was found that they were composed of cylinders more or less elongated and minute rounded granules. On the cylinders there could readily be observed a perfect screw, the helix being either single or compound, and undoubtedly fashioned from the interior of the recent spiral vessels, which fact gives the most satisfactory proof that the fibre is in the interior of the cylinder, as these siliceous casts could not have been so moulded if the spiral fibre had been external. The intervals between the helix show the shape of the fibre, and also show that it was of a solid nature.

"The other point that has occasionally been the subject of controversy, is the nature of the discoid bodies on the woody tissue of coniferous plants. These have been supposed by some persons to be glands ; by others to be thicker, and by others again to be thinner places in the membrane forming the walls of the woody fibres. Others have asserted that there is a pore in the centre of each disk, which allows of a communication between adjoining fibres. Later observers, however, have shown that none of the above theories is altogether correct, as the disks are not proper to one woody fibre, but are formed between two contiguous fibres, each contributing to the formation of the disk by having a minute depression, shaped like a saucer, on its exterior, which corresponds exactly to a similar depres-

sion on the contiguous fibre, whereby a small cavity is left between them. These markings or cavities very rarely exist on the sides of the fibres opposed to the pith or bark, but are very numerous on the sides parallel to the medullary rays. Wherever the markings occur, the saucer-shaped depression is thick at the circumference and for some distance towards the centre; but in the centre itself there is a spot so extremely thin and minute, that the light, which has to pass through it, becomes decomposed, and the spot looks either green or red, according to the adjustment of the focus.

"Having received from Professor Bailey a specimen of fossil wood which was found at Fredericksberg in Virginia, I perceived, on submitting it to the microscope, that it would easily break into minute fragments in the direction of the woody fibres, which, when carefully viewed, presented a most beautiful example of casts of woody tissue, with numerous spirals traversing the interior. At various points were arranged the ordinary coniferous dots, and to the outside there adhered small bodies of the same size, which projected beyond the outline of the fibre when seen obliquely, each bearing the precise representation of the coniferous disk. In other parts of the field of view were some of the same bodies detached from the sides of the fibres, which left no doubt that they were casts of the cavities existing in the original plant, and proved the correctness of the view above stated respecting the nature of these minute circular markings. Besides these siliceous bodies in the fragments of the fossil, there were others of such a shape as to leave no doubt that they were casts of the interspaces between the cells or woody fibres.

"There is very little doubt now, from the use of chemical tests, that fossil woods for the most part, or perhaps in all cases, still possess portions of the vegetable tissues, which are cemented together into a compact mass by silica, derived from the water to which the specimen had been subjected. It is difficult to account for the lodgement of silica in the tissues of plants; but it is possible that the molecules of silica, which exist as one of their organic constituents, form the first attractive points, to which others are added by the water, until the whole of the portion of the plant, the woody fibres, the vessels and cells, and the interspaces between these organs, is filled (in fact all places which in the recent plant are filled with sap and air), after the manner that the spicules of silica in a sponge form nuclei for the subsequent deposits of flinty matter, until the whole is converted into a shapeless mass like the original sponge.

"It follows from these observations, as every fibre, cell and spiral

vessel is a closed sac or tube, that when any vegetable tissue becomes fossilized, the silica occupying their interior and their interspaces is, in fact, in detached pieces, each being separated from the adjoining cell or vessel by the intervening walls of the tissue. If fossilization went no further, and there is reason to believe that in some cases it does not, the mass could easily be broken down by slight force, and each original fibre detached from its neighbour on account of the vegetable matter, after long maceration in the silicifying fluid, being almost decomposed. But frequently the process goes further; and as we know how readily vegetable membrane transmits liquids through its substance, it can be easily imagined how silica held in solution in the water would pervade it, and the intercellular spaces and the interior of the woody fibres would be cemented together into one mass of silica.

"The reason why some woods break down more easily than others after being fossilized, I have not yet been able to determine; but it is certain that coniferous woods are found to be the most frequent examples in which the tissue is not cemented, and I imagine that in those woods there is great power of resisting decomposition when immersed in water, or there exists little or no silica as an organized part of their skeleton, so that no points in the membrane for the commencement of deposits are offered; whereas, where silica does exist, the molecules form the first centres, and the whole become cemented together.

"It is thus, I am induced to believe, that silicification in the above instances proceeded so far as to fill the fibres, vessels and cells, and the spaces on their exterior; but as the vegetable membrane was interposed, the complete cohesion of the parts was prevented, and consequently they are now capable of being separated, and the frustules of silica when examined prove to be casts of the interior of the tissues and of the interspaces external to them, thus appearing to offer the most satisfactory evidence respecting the nature of the organs in question."—p. 149.

IX. *An Enumeration of the Plants of the Galapagos Archipelago, with Descriptions of those which are New.* By Joseph Dalton Hooker, Esq., M.D., F.L.S., &c.

X. *On the Vegetation of the Galapagos Archipelago as compared with that of some other Tropical Islands and of the Continent of America.* By Joseph Dalton Hooker, Esq., M.D., F.R.S., F.L.S., &c.

The materials for constructing this Flora have been for the most part furnished by Charles Darwin, Esq., who drew the attention of the

author "to the striking peculiarities which mark the Flora of the Galapagos group, and to the fact that the plants composing it not only differ from those of any other country, but that each of these islands has some particular productions of its own, often representatives of the species which are found in the others of the group." The total number of species is 239, of which upwards of 100 are described as new. We scarcely see how the plants of these islands can be said to "differ from those of any other country," since by far the greater number are also natives of North and South America, the West India Islands, many tropical countries, and some few even of Britain. This statement is indeed modified by Dr. Hooker in his remarks on the vegetation of the group, wherein the number of species differing from those of other countries is more properly stated to be one half the entire series; "a peculiarity shared by no other tract of land of equal size, excepting, perhaps, the Sandwich group." The author further states the result of his examination of the plants of the Galapagos to have shown "that the relationship of the Flora to that of the adjacent continent is a double one, the peculiar or new species being for the most part allied to plants of the cooler parts of America, or the uplands of the tropical latitudes, whilst the non-peculiar are the same as abound chiefly in the hot and damper regions, as the West Indian islands and the shores of the Gulf of Mexico; also that, as is the case with the Fauna, many of the species, and these the most remarkable, are confined to one islet of the group, and often represented in others by similar, but specifically very distinct congeners."

The geographical distribution of plants is one of the most interesting branches of botanical science; and to this subject these two papers are a very valuable contribution. Dr. Hooker enters at considerable length into the consideration of the mode by which each district of the earth, whether local or general, originally became possessed of its own peculiar vegetation, and the means whereby the seeds of certain plants were primarily transported and deposited in the localities on which they have subsequently conferred some of the most striking features. These means of transport, as more peculiarly respecting the Galapageian plants, he classes under the several heads of "oceanic and aerial currents, the passage of birds, and man." The conveyance of the majority of the littoral species, as well as of several of the non-littorals, is most probably due to the first-named of these agents; while such species as have small seeds, or seeds furnished with wings or other appendages, may be looked upon as well adapted for conveyance by the winds: and the agency of birds and of man to

the same end is well known. Dr. Hooker describes the course of the principal oceanic currents by which many of the Galapageian plants have probably been conveyed to their present localities; and concludes this part of his essay by showing the adaptation of the seeds of several plants for transportation, arranged under their natural orders, as follows:—

“*Menispermæ*.—*Cissampelos* presents a hard inner coat of the pericarp. Albumen scanty, fleshy.

“*Crucifera*.—*Senebiera didyma*, the only Galapageian species, forms an exception to the general rule, that the plants of this order are impatient of transport from the oily nature of their cotyledons; it is, as DeCandolle remarks, probably a native of Buenos Ayres, whence it has been diffused over nearly all the globe, and is continuing to spread.

“*Curvembryosæ*.—An artificial group, sufficiently natural, however, for the present purpose. Seeds very minute in some, as *Drymaria* and *Mollugo*. The *Chenopodæ*, *Phytolaccæ* and *Portulacæ* have a constitutional predilection to salt water. Albumen farinaceous in the greater part of the Galapageian genera.

“*Malvaceæ*.—Indurated pericarp of many. The floral envelopes of *Malachra* are well adapted to stick to various means of transport.

“*Sapindaceæ*.—Crustaceous testa and exalbuminous seed of *Cardiospermum*.

“*Zygophylleæ*.—*Tribulus cistoides* offers singular advantages for transportation in its woody seed-vessels, their spines beset with reversed prickles, and exalbuminous seeds.

“*Xanthoxyleæ*.—Osseous testa of *Xanthoxylum*.

“*Simarubeæ*.—*Castela* has a crustaceous endocarp and scanty albumen.

“*Leguminosæ*.—Generally firm testa, exalbuminous seeds, and great power of some to retain vitality.

“*Rubiaceæ*.—The densely corneous albumen of many may afford a sufficient protection to the seed.

“*Umbellifera*.—*Helosciadium laciniatum* is one of the few species enjoying a wide range, for which I can offer no explanation.

“*Compositæ*.—Exalbuminous seed. Pappus of *Baccharis* and adhesive pubescence of *Siegesbeckia orientalis*.

“*Lobeliaceæ* and *Scrophularinæ*.—Very minute seeds of *Scoparia dulcis* and *Lobelia Xalapensis*.



- "*Rhizophora*, *Avicennia* and *Scævola*.—These all have a predilection for salt water, and constitutional power in the embryo of resisting its destructive effects. *Scævola* has a hard putamen and scanty carnosé albumen; the other species are exalbuminous.
- "*Apocynæ*.—*Vallesia* I believe to be a salt-marsh or sea-side plant; it has a scanty albumen.
- "*Convolvulacæ*.—These have a scanty mucilaginous albumen. Two of them, *Ipomæa maritima* and *Calystegia Soldanella*, are sea-side species, with particularly wide ranges.
- "*Solanæ*.—Small seeds and adhesive glands of *Nicotiana glutinosa*; indurated osseous testa of *Dictyocalyx*, *Solanum* and *Lycopersicum*.
- "*Verbenacæ*.—Exalbuminous embryo and osseous endocarp of *Clerodendron* and *Lantana*.
- "*Labiata*, *Cordiaceæ* and *Boraginæ*.—Nucumentaceous pericarps and very scanty albumen. *Cordia* and *Boraginæ* are exalbuminous.
- "*Acanthacæ*.—Exalbuminous hooked seeds.
- "*Plantaginæ*.—Very dense corneous albumen.
- "*Plumbaginæ* and *Plantaginæ*.—Viscid glands on calyx, and hooked prickles of some *Pisoniæ*.
- "*Euphorbiacæ* and *Urticæ*.—Non-peculiar species of these may have been introduced through the agency of man into Charles Island.
- "*Hypoxidææ* and *Commelineæ* offer no apparent facilities for the extraordinary range of the two species that represent these orders.
- "*Cyperacæ*.—These have some facilities for adhesion to foreign substances, and the firm nature of the pericarp, further covered by the coalescing scales of the perianth, are protections.
- "*Graminæ*.—The ciliated glumes of *Poa ciliaris* and the awns of *Setaria Rottleri* are the only very evident aids to migration which I can adduce. The resistance of the seed to the action of salt water must be very slight indeed.
- "*Cryptogamia*.—The excessive minuteness of the sporules in this great class, together with the sporadic appearance of these where they are most minute, and the sudden development of others in suitable situations, leave little doubt that their diffusion by the winds is a never-ceasing though invisible operation.

"From the above it appears, that of the species presumed to be introduced into the Galapagos through various agencies, about 40, or nearly so, have exalbuminous seeds; and of the 50 albuminous-seeded ones, the majority have that substance dense or carnose; some farinaceous, but only two or three oily. These results agree to a considerable extent with what the gardener practically deduces, from the success or failure which attends the planting of seeds from foreign climes. The Leguminosæ and Solanæ, the very two orders the Galapagos' proportion of which shows so undue an amount of continental American species, are in miscellaneous collections of seeds, those which best retain their vitality during long voyages."—p. 256.

This paper is concluded by comparative enumerations of the species found in the islands of this group.

XI. *On the Ambrosina ciliata of Roxburgh.* By the late William Griffith, Esq., F.L.S., &c.

An exceedingly curious plant, belonging to the Aroidæ, and separated from the genus *Ambrosina* by Fischer, by whom the generic name of *Cryptocoryne* was conferred upon it. Many peculiarities are exhibited by the seeds of this plant during the progress of development, not the least curious of which is the spontaneous separation of the cotyledon from the embryo, about the period of the dehiscence of the fruit. This circumstance presents an exception to the general law of the necessity for the presence of cotyledons. Mr. Griffith, however, and apparently with justice, says he is "inclined to think from this and some other instances, that the presence of a highly developed plumula occasionally obviates this necessity," as is most probably the case with the present plant, in which the plumule is enormously developed. Three plates are filled with details of the anatomical structure of the plant and its organs of impregnation and of reproduction in their various stages of development.

XIV. *Description of the Asafoetida Plant of Central Asia.* By Hugh Falconer, M.D., F.L.S., &c.

The plant here fully described under the name of *Narthex Asafoetida*, is the *Ferula Asafoetida* of Linnæus, and the *Asafoetida Disguensis* or "Hingisch" of Kæmpfer; and is believed not "to have been met with since it was examined *in situ* by that excellent and careful observer upwards of a century and a half ago." Dr. Falconer met with it "growing wild in the valley of Astore, one of the subordinate valleys of the Indus, behind Cashmere, about the middle of September, 1838, when returning from an exploratory journey into the Thibetan region of central Asia." It was then dried up, and the

fruit ripe, so that neither Dr. Falconer nor Kæmpfer was able to find the plant in flower. Seeds subsequently procured from the Astore station were distributed to several gardens in this country by Dr. Royle; some of these have vegetated in the Edinburgh Botanic Garden.

XV. *Account of Gamoplexis, an undescribed Genus of Orchideous Plants.* By Hugh Falconer, M.D., F.L.S., &c.

This genus is named Gamoplexis from the cohesion of the segments of the perianth into a nearly regular six-cleft flower, and affords the only known example in this order "of the union of all the divisions of both whorls of the floral envelope into a monophyllous perianth."

"Gamoplexis appears to be a true parasite, but after a peculiar fashion, which disguises the habit. The tuberous rhizoma emits no root-fibres by which to fix itself on other plants, but is itself matted over by their slender rootlets, which ramify upon it in every direction slightly imbedded in its surface, to which they adhere with great tenacity, especially to the scarious margins of the abortive sheath-annuli, giving rise to the appearance of the plant being the subject of a parasitical growth rather than a parasite itself. This I observed in numerous instances; but other cases occurred to me in which the surface of the tubers presented no appearance of the kind; and Unger, in his memoir on parasitical plants, affirms that no true instance of parasitical growth occurs among the Monocotyledones."

This is a splendid orchid, three feet high, the stem being perfectly erect, leafless, with a few sheathing scales, and rising from among the decaying leaves at the roots of trees, like our own *Neottia Nidus-avis*, which was long believed to be parasitical, its true habit being described by Mr. Leighton in his 'Shropshire Flora,' as quoted in *Phytol.* i. 25.

L.

*Occurrence of Linaria supina at Hayle; and Lastræa recurva throughout Cornwall.* By THOMAS WESTCOMBE, Esq.

WHEN in Cornwall in the 8th month last, I observed *Linaria supina* growing rather abundantly on the sides of the embankment at Hayle, and if not indigenous in that part of the country, it is certainly well naturalized.

I noticed *Lastrea recurva* almost throughout the county of Cornwall, but particularly abundant about Penzance. I did not see a plant of it in Devonshire.

THOMAS WESTOOMBE.

Worcester, 1st mo. 6th, 1848.

*Revivifying Property of the Leicestershire Udora.*

By MISS M. KIRBY.

THE other day I was wishing to make an alteration in the arrangement of a specimen of the Leicestershire Udora or Anacharis that had some months since, pasted upon paper, taken its place in my herbarium. On damping the paper for the purpose of disengaging the specimen, my attention was attracted by the avidity with which the plant absorbed the moisture. Upon this I plunged the specimen into water, and had much pleasure in seeing it (with the elasticity of a moss) speedily restored to its original beauty and freshness. Should the Udora of India possess this power of revivification, it may, in the art of sugar-refining, be made serviceable *more than once*. It is in the last stage of sugar-refining that the Udora is used; it is laid upon the loaves, and the water slowly running through, washes the sugar from all remains and tinge of the treacle. This process is repeated *four or five times*, according to the nature of the sugar, &c. The plant is of no other use than to retain the water, and prevent its running too rapidly through the mass, by which too much of the sugar would be dissolved.

Pipe-clay carefully mixed up with water, or a sponge dipped in water, acts in the same manner. See Prof. Brande's 'Manual of Chemistry,' &c., &c.

I leave it to your judgment to decide whether the above is too trivial a circumstance for the Phytologist's notice. I am ignorant whether the fact is already known, and whether the plant is consequently used more than once, therefore mine is a *suggestion* only.

MARY KIRBY.

Friar Lane, Leicester,  
January 10th, 1848.

*Further Remarks on the Subject of Viola flavicornis.*

By EDWARD FORSTER, Esq., V.P.L.S.

I do not wish to trouble you or your readers with the difference of opinion still existing between Mr. Hewett C. Watson and myself in regard to *Viola flavicornis* (vide Phytol. iii. 1020), nor should I do so, had he not called on me to show, if I can, that his Surrey violet, No. 3, differs from *Viola flavicornis* "to any describable degree." I answer, I think I can.

First, because in two specimens of the Surrey violet, No. 3, from St. George's Hill, which Mr. Watson favoured me with, the leaves are *ovate lanceolate*, not heart-shaped, though it is true that on one of them a leaf or two show a very slight tendency at the base to become so: on the other specimen not one can I discover.

Secondly, because in the specimen of the dwarf violet, No. 4, every leaf is decidedly *heart-shaped*, *obtuse*, as described by Smith and figured by Sowerby. If I recollect rightly, they are all so in the authentic specimen in the Smithian herbarium. Whether these are describable differences I leave to the public to determine. Mr. Watson may say they are not, as he has not alluded to the shape of the leaves, nor does the word heart-shaped once appear in his remarks. This investigation leads me to think that the Surrey violet, No. 3, is the typical form of *Viola lactea*, and not a variety as I had conceived.

I have endeavoured to express myself plainly, hoping to be understood; if I am not, I cannot help it, and Mr. Watson must go on persuading those to whom he has distributed the Surrey violet that he has not misled them by naming it *V. flavicornis*. If any one should deign to ask my opinion, I shall not be able to help answering: I still think that he has.

EDWARD FORSTER.

Woodford, 10th January, 1848.

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*Fact illustrating Mr. Rainey's Observation that Crude Sap ascends through portions of a Plant which have lost their Vitality.*

By ISAIAH W. N. KEYS, Esq.

UPON reading in a late number of the 'Phytologist' (Phytol. ii. 1027) that portion of the extracts from Mr. Rainey's work on the Ascent of the Sap, &c., which describes his experiments to prove the passage of

the crude sap through tissue deprived of vitality, I was reminded of a phenomenon corroborative of his conclusions, afforded by the growth of shoots from the extremities of apparently lifeless stems of *Stellaria holostea*.

In numerous cases the writer has observed dry and brittle stalks of this plant, two feet or more in length, surmounted by recent branches in full vigour, and producing flowers as well as foliage in luxuriance. He deems this an interesting fact in connexion with Mr. Rainey's experiments, inasmuch as it exhibits Nature operating wontedly, but secretly, in a manner analogous to that which she adopts under unwonted circumstances in the laboratory.

The writer has often pondered the phenomenon which he now records, but has never arrived at a satisfactory conclusion. It seemed to him a *lusus nature*. The theory of Mr. Rainey unravels the mystery.

ISAIAH W. N. KEYS.

Plymouth, 12th January, 1848.

*Seasons of the Flowering of Plants sometimes incorrectly given by our Standard Authorities.* By ISAIAH W. N. KEYS, Esq.

I HAVE found that the flowering seasons of some of our plants are not so correctly given in the various works on the Flora of Britain as could be desired. It would be impossible, undoubtedly, from the variableness of seasons, to fix exact periods, but might not a closer approximation than we have realized be attained?

Many inconveniences, obvious to all collectors of plants, arise from imperfect or inaccurate information in this *item*.

I am prompted to offer these remarks on the present occasion in consequence of having observed in this neighbourhood, a few days since, some fine specimens in flower of *Koniga maritima*. I have referred to several authorities: they all set down "August and September" as the months during which this plant blossoms. In the course of my short botanical experience I have encountered similar anomalies.

I may add that, in a walk to-day through Saltram Woods, I gathered several flowers of *Vinca minor*. Hooker and Babington (those gentlemen will excuse my using their names thus familiarly) both give "May and June" as the months when this plant is in

bloom. The present winter has certainly been hitherto unusually mild, a circumstance which may be urged to account for the early appearance of the flowers in question. I have, however, invariably found them plentifully in February or March at the latest, and believe that in this neighbourhood at least, they are "few and far between" in the months mentioned by the above authors.

Should these instances be thought worthy of notice in your pages, we may hope for revision in even this subordinate department of botanical description.

ISAIAH W. N. KEYS.

Plymouth, January 12th, 1848.

*Death of Mr. James Cruickshanks, a Contributor to the 'Phytologist.'*

DIED, at the Crichton Institution, near Dumfries, on the 3rd December last, in the prime of life, Mr. James Cruickshanks, Associate of the Botanical Society of Edinburgh. The deceased was an excellent botanist, and particularly skilled in the obscurer Cryptogamia. In the Musci and Hepaticæ he was remarkably well versed, and had accumulated a very extensive and complete collection of the British species in these interesting orders. Nor were his acquirements confined either to Botany or the other departments of Natural History: he was no less eminent as an artist, a musician and a linguist. Almost wholly self-educated, and with a constitution much impaired by disease, he gave striking proof of what may be accomplished in the pursuit of knowledge under the greatest disadvantages of health and opportunity. In his personal character Mr. Cruickshanks was no less estimable. A pious son, a most faithful friend, generous, modest, and warm-hearted, his premature death is mourned as widely as he was known.

P. G.

Dumfries, January 14, 1848.

BOTANICAL SOCIETY OF LONDON.

Friday, January 7, 1848. — John Edward Gray, Esq., F.R.S., President, in the Chair.

Donations to the Library were announced from the Royal Agricultural Society of England, the President, Mr. John Miers, the Rev. W. A. Leighton, Mr. G. H. K. Thwaites and Mr. F. Crisp. British

plants had been received from Mr. Borrer, Dr. Bidwell, Dr. Steele, Mr. W. Mitten and Mrs. Russell. Mr. George Luxford, A.L.S., Lecturer on Botany at St. Thomas's Hospital, Mr. J. W. Salter, F.G.S., of London, the Rev. W. A. Leighton, B.A., of Luciefelde, Shrewsbury, Mr. J. B. French, of Bath, and Mr. Davis, of Lindfield, Sussex, were elected members.

Dr. Planchon communicated some remarks on *Ulmus* (see Phytol. iii. 34).—*G. E. D.*

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*Remarks on the European Species of Ulmus.*

By DR. J. E. PLANCHON.\*

THE flattering manner in which the Botanical Society of London was pleased to receive my oral communication on the subject of the European, and more particularly the British species of *Ulmus*, induces me to present to the public the same observations in the more regular and technical form required in scientific writings.

Botanists differ widely in opinion as to the existence of *Ulmus campestris* and *Ulmus montana* as distinct species: some regard them as constituting a single species; others divide them into many; and almost all overlook the real and indubitable marks by which Nature has stamped their title to stand as independent and immutable members of creation. The distinctions to which I allude are to be found in the figures, if correct, which represent these plants in a state of fructification, but the merit of pointing them out as tangible, essential, specific characters belongs, I believe, originally to Gaudin, who, in this and other cases, has given us additional evidence that Nature herself is the best of books for explaining Nature: the characters, from my own observations, when ignorant of those of Gaudin, are simply these:—

In *Ulmus campestris* of Smith the cavity which encloses the seed or ovulum is always almost contiguous to the emarginate apex of the samara or ovary; hence the samara is more or less cuneate-oblong or obovate.

In *Ulmus montana* of Withering, the same cavity is always placed a little below the middle of the samara or ovary and far from its emarginate apex; hence the samara is more or less elliptical.

Such is the main distinction which it was necessary to point out:

\* Addressed to G. E. Dennes, Esq., Sec. Bot. Soc. Lond., by whom it is communicated.



other less important characters will be recorded in the following diagnoses, to which I have added from my notes the intricate synonymy of the two species, together with certain well ascertained localities.

*Ulmus campestris*, Smith et pler. auct.

U. foliis brevius acuminatis, duplicato- vel subsimpliciter serratis; floribus parvis, breve pedicellatis, 4-5-meris, laciniis perianthii ciliatis, samaris obovatis vel oblongo-obovatis, glabris, apice breve bifidis vel profunde emarginatis, loculo emarginaturæ subcontiguo.

Var.  $\alpha$ . vulgaris. Foliis rhomboideo-obovatis, 1-3-poll. longis, supra scabris, subtus pubescentibus.

*Ulmus campestris*, *Smith, Eng. Bot.* 1886, forma samaræ cuneato-oblonga, sinu emarginaturæ aperto, et *Ulmus suberosa*, *Smith*, l. c. 2161, forma samaræ breve obovata sinu emarginaturæ clauso.

— *campestris* et *Ulmus suberosa*, *Gaudin, Fl. Helv.* ii. 262. *Lindley, Syn. of Brit. Flor.* 226.

— *campestris*  $\alpha$ . et  $\beta$ . *Spach* in *Ann. des Sci. Nat.* 2ème sér. xv. 365.

— *pumila*, *Pall. Fl. Ross.* pro parte quoad stirpem Sibiricam arborescentem.

Var.  $\beta$ . major, *Spach*. Omnia prioris, nisi folia, sicut flores et samaræ, majora.

— major, *Smith, Eng. Bot.* 2542. *Lindley, Syn.* 226.

— *Hollandica*, *Mill. ex Smith*.

Var.  $\gamma$ . lævis, *Spach*. Foliis plus minus coriaceis, supra glaberrimis vel scabridis, nitidis, lævibus, subtus præter nervorum axillas barbatas glabris, duplicato- vel subsimpliciter serratis, junioribus, sicut stipulæ et samaræ, glandulis substipitatis sparsis.

*Ulmus campestris*,  $\gamma$ . lævis, *Spach*, l. c.

— glabra, *Mill., Smith, Eng. Bot.* 2248.

— glabra et carpinifolia, *Lindley, Syn.* 226.

— *pumila*, *Pall.*, pro parte quoad stirpem Caucasianam arborescentem.

— *Sarniensis*, *Loddiges*, fide herb. Lindl.

Var.  $\delta$ . fastigiata, *Spach*. Omnia præcedentis, sed rami erecto fastigiati, et folia interdum cuspidata.

*Ulmus campestris*,  $\delta$ . fastigiata, *Spach*, l. c.

— stricta. *Lindl. Syn.* 227.

**HAB.** Throughout almost the whole of Europe from Gottland to the Mediterranean, and perhaps, if the *Ulmus campestris*, *Desf.*, belongs to this species, extending even to Mauritania; also in the Caucasian region and in Siberia! But its geographical limits are nowhere fixed. Var.  $\alpha$ . Sweden; Oland, *Fries, herb. norm.* Scotland, according to Sir William Hooker, who informs me that it is only cultivated there, whereas *U. montana* is commonly wild. England; no doubt common, but as a special locality recommended to the notice of British botanists, I may observe it is the only form I have seen about Kew, in Surrey. Germany, *Koch.* Hungary, near Buda, *Herb. Lindl.* Switzerland, Valais, *Gaudin, Flor. Helv.* France, no doubt common; Montpellier, *Benth. in Herb. Lindl.* Siberia, *Schlangin in Herb. Lindl. ex Herb. Prescott.* Var.  $\beta$ . seems to be known only in cultivation. Var.  $\gamma$ . Sweden; Gottland, *Fries, Herb. norm. in Herb. Hook.* England; Essex, *Forster ex Smith*; Sussex, near Winchelsea, *Herb. Lindl.*; Shropshire, near Ludlow, *Herb. Lindl.*; Suffolk, near St. Margaret's, *Herb. Lindl.*; Cambridgeshire, *Herb. Leman.* France; Pyrénées or. et centrales, Haute Garvune, near St. Béat, *Benth. in Herb. Lindl.*; Hérault, near Montpellier, *Benth. ibid.* Caucasus, *Prescott in Herb. Lindl.*; Somehetia, Iberia et Karabagh, *Szowitz in Herb. Hook.*; near Sarepta, *Prescott in Herb. Lindl.* Var.  $\delta$ . Cornwall and north Devon, *Lindley.* France, cultivated in gardens according to Spach.

*Ulmus montana*, Withering.

*U. foliis duplicato-serratis, cuspidatis, supra asperis, subtus pubescentibus; floribus breve pedunculatis, 5-7-meris, laciniis perianthii ciliatis, samaris oblongo- vel late ellipticis, glabris, apice profunde emarginatis, sinu emarginaturæ clauso, loculo infra vel versus medium samaræ sito, ab emarginaturæ fundo longius distante.*

*Ulmus montana*, *Wither. Arrang.* ii. 275. *Smith, Eng. Bot. tab.* 1887; very good figure as to habit and leaves, but the fruits are smaller than in the usual state. *Gaudin, Fl. Helv.* ii. 263; the synonyms of *Fl. Danica* and *Schkuhr* do not belong to this plant. *Mutel. Fl. Franc.* iii. 174. *Lindl. Syn.* 227.

— *campestris*, *L. herb.*! but not likely of the *Flora Suecica*, since the species does not seem to be found in Sweden. *Willd. Arb.* 391 et *Sp.* ii. 1324; with the exclusion of almost all synonyms. *Ait. Hort. Kew. ed.* 2, ii. 107;

with the exclusion of the synonym of Swensk. Bot. *Benth. Cat. Pl. Lang. Villars, Dauph. ex Mutel.*

*Ulmus campestris*, *α. Koch, Syn. ed. 2. 734, pro parte.*

— *campestris, α. vulgaris, Spach in Ann. des Sci. Nat. 2ème sér. xv. 351 et in Suites à Buffon. ; figure of the fruit. Nees, jun. Icon. Fl. Germ. ii. tab. 34 ; as to the figure of the fruit.*

— *folio latissimo scabro, Good. in Gerard Eem. 1841, ex Ray, Hist. Pl. ii. 1426.*

Witch-elm, in many parts of England.

Chichester elm of English gardens according to Dr. Lindley.

Although the list of synonyms I have given is already too long, I might add to them some hundreds more, but this would be a task as useless as ungrateful. It is fortunate that botanists begin generally to prize facts much above quotations taken at random out of enigmatical books, and which, far from illustrating truth, swell every day the dark abyss of botanical errors. In all cases let it be remembered that in Nature all is perfection ; in human works greatness itself is but a degree of weakness, and, instead of joining with those who deny the existence of species because they are not able to see their limits, let us rather apply ourselves to close investigation, and we shall perhaps, to use an expression of Mr. Watson, learn to make a difference between *book-species*, which are liable to changes, and real species, whose variations are bounded by immutable limits.

HAB.—Perhaps not rare through various parts of Europe and in Asia Minor, but almost everywhere confounded with the preceding, and for that reason the localities are not to be given in most cases on the authority of others.

Scotland ; very common there, and perhaps the only species indigenous, according to Sir W. Hooker ; near Edinburgh and Loch Leven Island, near Kinross, *Herb. Hook.* England ; in many places, but not so common as the preceding : Westmoreland, near Kendal, *Dr. Stokes ex Wither. ;* Lancaster, near Warrington, *Wilson in Herb. Hook. No. 1 et 2 ;* Monmouth, near Wind-cliff, *Lindl. Herb. ;* Cambridgeshire, near Streatham, *Leman, Herb.* Germany ; *Ehrh. Exsic. No. 62, in Herb. Smith.* Switzerland ; rare there in the woods, but commonly cultivated, according to Gaudin : Valais, ubique inter Octodorum et Sideram, *Gaud. Fl. Helv.* France ; Pyrénées, central. et orient., *Benth. Cat. Pl. Langued. ;* Dauphiné,

*Mutel. Fl. Franç.* Hungary; *T. Lang*, in *Herb. Lindl.* Asia Minor; woody region, *Aucher*, No. 5321, in *Herb. Hook.*

The above being only an extract from a more general memoir on the tribe of *Ulmaceæ*, which will shortly be published, time would not allow me to make further investigations on these two species of *Ulmus*. My only desire was to give a hint to those whose more special object is the study of European Botany. No society, therefore, could better forward my wish than that which began under your auspices, and whose end is to illustrate, by the best of all means, well-preserved specimens, the general Flora of Europe.

J. E. PLANCHON.

January, 1848.

*Explanations of some Specimens for distribution by the Botanical Society of London in 1848.* By HEWETT C. WATSON, Esq.

AGAIN, as in past years, I beg the Editor's permission to convey through the pages of the 'Phytologist' such needful explanations concerning certain of the specimens, now in course of distribution from the Botanical Society of London, as cannot be given to the recipients thereof by means of their labels only. In doing this, I may again, as in last year, congratulate the members on the improving character of the Society's distributions. No past season has ever brought so good a collection of specimens as that which is now in hand. They are generally complete examples of their species, have been more carefully dried, and include a larger proportion of those local plants which are likely to be much applied for; and, further, they have been more correctly and more neatly labelled by their contributors, than were the specimens of any preceding year.

In giving this favourable character to the aggregate collection, however, I write of it as it remains after the destruction of several thousands of specimens either supernumerary or unsuitable, or else labelled at variance with the "Regulations" of April, 1846, a copy of which had been placed in the hands of each member, and the better observance of which might reasonably have been expected. The necessity for destroying so many specimens is greatly to be regretted, when we call to mind the time and personal trouble which must have been bestowed on the collecting, drying, and labelling of them, with a result so utterly useless to everybody.

The destruction of some supernumerary specimens will hardly be

avoided, as this could only be prevented by such an amount of forethought and of botanical knowledge as cannot be looked for among the members in general. The Society sends out lists of the species which are likely to be wanted, or of which no specimens remain on hand. Some of these may be species of rather frequent occurrence, and of which very few specimens would suffice to meet the applications of the few members who would apply for them. But this circumstance of their frequent occurrence places them within the easy reach of several contributors, who therefore dry and send them to the Society in large numbers, and the aggregate amount includes probably ten times the number which will be applied for during several years. As an example of this, I may cite the *Gentiana campestris*, which was marked as a desideratum because there were no specimens of it in hand, and three or four young southern botanists had applied for it. In the 'London Catalogue' this species is followed by "16," in the scale of rarity, which extends from 1 to 20; the latter indicating the highest degree of frequency, to which 16 makes a tolerably near approach. Nevertheless, one contributor sent more than two hundred specimens, and as several others also sent about fifty each, the aggregate result exceeded five hundred specimens of a species, which is so little rare that not twenty of them may be applied for in the next three or six years. If the Society were to keep this large number of specimens, they would not only occupy so much space uselessly, but they would serve as an undisturbed breeding-place for those insect pests which become so troublesome among large collections of recently dried plants, and which rapidly spread after a first generation has come to maturity undisturbed. Now, if contributors would only make use of the data for judgment, placed before their eyes in the Society's 'Catalogue of British Plants,' and dry and send few specimens of those species which are marked by high Nos., they might spare this waste of their own time and trouble, and turn their efforts to a more useful end.

Another circumstance which leads to the destruction of many specimens is found in the condition of the specimens themselves. Comparatively few now require to be destroyed on account of that former carelessness in the drying which produced wrinkled up or badly coloured specimens; but great numbers are unavoidably destroyed on account of being too long for the Society's paper in which the duplicates are kept for distribution; and a still greater number suffer the like fate on account of being only fragments, where full specimens might have been easily sent instead. The former defect is the result

of sheer inattention to the "Regulations," which expressly direct that specimens exceeding fifteen inches in length are to be folded or bent within that compass while fresh. The latter defect is more frequently to be attributed to botanical inexperience; for young botanists often seem totally unaware of the importance of full-length specimens. They send the flowering tops of plants, culms of grasses without leaves, the catkins of willows without the foliage, orchises without roots, or fragments of some sort, such as often prove quite insufficient to distinguish one species from another nearly allied species.

In addition, there is so much of inconvenience and extra trouble caused by sending the specimens labelled contrary to the "Regulations," that all so sent are now destroyed at once, unless they chance to be examples of some very local species which the Society cannot well afford to throw away at the time. In this case the specimens may be retained and distributed; the negligent contributor possibly receiving a less ample return for them, through getting a lower chance for rarities or novelties received in scanty numbers. I will give one example in illustration of the loss of time caused by an apparently slight neglect of the Society's "Regulations." The duplicates are of course kept in the same arrangement as that in which their names are placed in the 'London Catalogue of British Plants,' which is the key to the Society's distributions. As fresh parcels accumulate on hand, the specimens are taken out and reduced into the same arrangement, preparatory to the placing of them in the general store. Under the most favourable circumstances, it occupies much time to sort and arrange the thousands upon thousands of specimens annually received from contributors. The process is done partly by the generic and specific names, partly by their Nos.; and it thus becomes a point of much importance that the names and Nos. should instantly catch the eye, as sheet after sheet is raised in succession, and brings into view the specimens on the sheet underneath. But, where the names and Nos. are obscured or concealed by the specimens, an interruption occurs in the process of sorting and arranging the sheets of specimens, by the necessity of stopping in order to raise the specimens from the paper, and examine the labels behind or beneath them. Experience alone can give any clear conception of the enormous waste of time that is caused by this one apparently trivial defect in the position of the labels. Equally troublesome is the omission of the Nos. altogether; for in that case the process of sorting is arrested until a copy of the 'London Catalogue' may be got at, the proper No. ascertained, and then probably written on each of the defective labels. Now, as it is quite

impossible for any contributor to misunderstand the direction about placing on his labels the corresponding No. of the species from the Catalogue, the omission can be ascribed only to a negligent (not to say, a selfish) disregard of the trouble and loss of time thereby caused to other parties, who give their unpaid services to the Society, and thus indirectly to the faulty contributor also. I trust that by thus openly calling the attention of contributors to the faults of their selections, their specimens, or their labels, such faults may be less and less frequently committed, each succeeding year. And I may repeat that, notwithstanding the destruction of so many defective specimens this winter, there still remains an ample supply, most of which are truly of very high quality. Many of these, indeed, have been so well selected, and so well dried, that they render me quite ashamed of things which I have dried for my own herbarium, or contributed to the Society, at no very distant date.

But I have already trespassed too far from the more immediate object of this communication, which is that of giving some explanations concerning any novelties, remarkable varieties, or doubtfully named plants, which the members may find in their parcels sent from the Society in 1848.

A new edition of the 'London Catalogue of British Plants,' having been published at the commencement of the present winter, almost everything and anything, hitherto ascertained to be British, can be applied for in the usual manner by members. Under the head of "Novelties," we class those plants which are not enumerated in the 'London Catalogue;' and such plants are distributed to the members, as far as specimens thereof can be obtained, whether asked for or not; since, at the time of sending up their lists of desiderata, several members may still be unaware of the British discovery of those plants. It was hardly to be expected that anything could come under the category of "Novelties," so immediately after publication of the new Catalogue; and yet there are three plants with apparent claims to be so designated and placed. In addition, there are some varieties which illustrate or throw light upon certain contested points in British botany. And there are also other specimens which cannot be labelled with sufficient certainty, and to which the attention of the recipients may be advantageously or warningly directed.

*Udora verticillata* (Aut.).—This peculiarly interesting discovery has been already made known to readers of the 'Phytologist' (see Phytol. ii. 1050); and some additional explanations were given in the Preface for the same volume, stitched in the No. for

January of the present year. Various names have been conferred upon the plant, which are now supposed, however, to include various plants, specifically distinct, although confused in books. The Rev. A. Bloxam, to whom the Society is indebted for specimens of this and many other valuable plants, has used the unpublished name of "*Anacharis Alsinastrum*" on his labels. Unfortunately, the specimens are destitute of flowers, and sufficient only for about a tenth of the members; for so large a supply is now requisite in order to send to each member, that it becomes difficult to equal the demand. By next winter, a more numerous supply may be hoped for; and even in their flowerless state the specimens can be readily distinguished from all other British plants. It will probably be found in various other counties besides Leicestershire; and to those botanists who may wish to search for it without having seen specimens, I would rudely describe it as an aquatic monocotyledon, with verticillate leaves, and general appearance between *Callitriche autumnalis* and *Potamogeton densus* or *perfoliatus*, although with flowers more resembling those of *Alisma*. But in general form the *Udora* resembles the European *Elatine Alsinastrum* more than any other plant known to me, if we leave the flowers out of consideration. I might compare *Udora* with the American *Mayaca*, were it not that such a comparison would be like an attempt to convey some idea of the little known by reference to that which is probably less known.

*Salix* ———? ("new species?").—Among various other species of this intricate genus, Mr. Ward, of Richmond, sends specimens of one which he thinks may prove to be a novelty. The label intimates that Mr. Borrer refers the specimens to *Salix aquatica*, an opinion with which Mr. Ward does not concur. They are located from the neighbourhood of Richmond, Yorkshire.

*Myriophyllum pectinatum* (De Cand.).—Mr. Notcutt, to whom the Society is indebted for a good supply of specimens, reported the discovery of this plant in the '*Phytologist*' for last year (see *Phytol.* ii. 1015). The specimens themselves may be received also as patterns of perfection; being good examples, well dried, and very neatly labelled; the absence of the No. being of course unavoidable on the label of a plant which was reported just too late to find place in the '*London Catalogue*.' According to the characters set forth in Koch's *Synopsis*, some of the specimens might as correctly be referred to his variety '*intermedium*,' as to his variety '*pectinatum*.' Doubtless Mr. Notcutt might find the connecting links between this latter variety and the more typical form of *M. verticillatum* in the same locality;



and I trust he will send a series for the herbarium of the Society. The first-sight similitude to *M. spicatum* is so strong, that other botanists may have passed by it as such.

*Equisetum palustre* (Jinn.), vars. — In the 'History of British Ferns' Newman figures two varieties of this *Equisetum*, under the names of "polystachion" and "nudum;" the former being a monstrous or very highly developed state, in which the branches become fructiferous; the latter being a depauperised state, in which the branches are few or wanting, and the whole plant dwarfish and less erect than ordinary. As these are connected by intermediate links with the normal plant, and are rather variations or states, than distinct varieties, they were omitted from the second edition of the 'London Catalogue,' like many other things, for sake of brevity and compression. Dr. Mateer has sent some capital examples of the 'polystachion' form from Ireland; and Mr. Sansom has supplied some of the 'nudum,' from the neighbourhood of Crosby, on the Lancashire coast. Comparatively few of Mr. Sansom's specimens are so denuded of branches, as are those represented in Newman's work, page 49, which nearly depicts the mountain form or variety, called "alpinum" by Hooker and others. As their omission from the Catalogue will prevent applications for them, the specimens from Dr. Mateer and Mr. Sansom will be sent out like the novelties and other non-catalogued things.

*Primula vulgaris* var. *intermedia* (Lond. Cat.).—The connecting links between the cowslip and primrose may be grouped under three principal forms; as is done in the 'London Catalogue.' First, there are the caulescent primroses, which differ but little from the ordinary primrose (*P. vulgaris* or *acaulis*, of authors) except by having their umbels of flowers elevated on a common scape or peduncle, either with or without solitary flowers from the same root. Secondly, there are the intermediate forms, in which the physical characters of colour, shape, pubescence and inflorescence are those of primrose and cowslip combined, although, on the whole, the characters of the primrose predominating. Thirdly, there is a form, to be noticed under the next head, in which the characters are also intermediate, but nearer to those of the cowslip (*P. veris* or *officinalis*, of authors). Examples of the first of these three grouped varieties are not unfrequent; those of the second are much less so; those of the third, according to my experience, very rare. The second and third are often applied for unsuccessfully by members, owing to the difficulty of procuring the wild specimens in sufficient numbers. By way of temporary substitute, I

have dried garden-grown examples of them, which may at least suffice to show the plants intended by the names to those botanists who have imbibed a prejudice (for so I must venture to designate it) against herbarium specimens obtained from gardens. It will be apparent from my dried specimens of the "intermedia," that the colour and size of the flowers, the form of the calyx, and the pubescence, are truly intermediate; the inflorescence is perfectly umbellate and caulescent, as in the cowslip, but the pedicels are more upright at an early stage; the corollas less concave than in the cowslip; the leaves nearer the primrose in outline. At the time of sending my specimens to London, the colour is perfectly preserved, but it will change by damp, and slowly by time. I may add, although the flowers and leaves are garden-grown, that the original root was a genuinely wild one. It is the plant whose seeds produced the heterogeneous assemblage of cowslips, primroses, &c., recorded in the 'Phytologist,' ii. 217 and 852.

*Primula veris* var. *major* (Lond. Cat.).—The explanations given with the preceding, apply in part to this plant. It is highly uncertain whether it should be placed as a variety of cowslip or of primrose. By its short and close pubescence, its umbellate and caulescent inflorescence, its short and broad calycine teeth, it is a cowslip; but in its paler-coloured flowers, less concave and larger, it diverges towards the primrose. The leaves are rather more like those of the primrose, particularly in the specimens distributed, which are accordingly labelled "subvariety, with leaves like the primrose." The plant which produced these specimens, came up from some self-sown seeds by the side of a wild plant of *P. veris* var. *major*, which had been transplanted into my garden, but which had leaves less like those of the wild primrose than are the leaves of its offspring.

*Experimental Primulae*.—In connexion with the preceding, I may also mention that I have dried many examples of the mixed assemblage of varieties produced from the seeds of '*Primula vulgaris* var. *intermedia*,' as recorded in the 'Phytologist,' ii. 217. These are made up into twenty packets, each containing a few specimens, not sufficient to exhibit all the gradual steps of transition, but sufficient to show that there is a transition from genuine primroses to genuine cowslips. Even those botanists who refuse faith in the carefulness or exactness of the experiments on record, may see with their own eyes that the intermediate links do exist. Indeed, they may be raised by anybody, may be seen in many gardens, or may be found wild by diligent search. Nevertheless, while I see no escape from the necessity of doing so, I am still somewhat reluctant to place cowslip and primrose as a single

species. The fact, once fairly admitted, of such extensive variation of a single species, must throw doubt upon thousands of supposed species as they now stand recorded and described in books.

*Veronica officinalis* (Linn.) var.—These specimens are distributed in order to show a variation from the ordinary form of the capsule, which is truncate or rounded at the summit, instead of being deeply notched. In this state the plant becomes the link of connexion between the ordinary *V. officinalis* and the very dwarf variety known as *V. hirsuta*, of Hopkirk. The specimens were collected on dry and sandy ground, on St. George's Hill, near Weybridge, Surrey. Some of them run pretty near the ordinary obcordate capsule of *V. officinalis*, while others have the fruit completely obovate and entire. I have occasionally seen the latter form of capsule on quite luxuriant plants, though it is more usually found in those of stunted growth, and approximating more towards *V. hirsuta*.

*Aspidium angulare* (Sm.).—Mr. Thomas Moore sends a series of examples, numbered 1 to 7, from the neighbourhood of Guildford. I do not know why they are thus distinguished, but have placed them for distribution in sets, of which there are eight or ten. Some other varieties, such as Dr. Mateer's *Plantago maritima*, with very long bracts, &c., &c., will sufficiently explain themselves, and need not detain us. I have still some few things to mention which are more or less doubtful.

*Hieracium maculatum* (Sm.).—Mr. Bladon sends excellent specimens of a plant labelled under this name from Pont-y-Pool, Monmouthshire. They are doubtless examples of the plant which that gentleman mentioned in the 'Phytologist' lately (see Phytol. ii. 927); and they have, as he stated, the radical leaves shrivelled or lost. Such, however, is hardly the normal character of the species to which they belong, namely, the *H. vulgare* of Fries. On walls, dry hedgebanks, and such-like situations, the radical leaves fade early; but in the damper meadows and woods of the Highlands, and in the ordinary soil of the gardens in Surrey, the radical leaves are persistent through the summer. This difference may be readily seen in numerous other plants; for example, the common cereals, in dry and poor ground, or in rich and damp soils. As various species of *Hieracium* run into "maculatum" varieties, the name has not been kept in the second edition of the 'London Catalogue.' For example, *Hieracium sylvaticum maculatum* is *H. vulgare* of Fries, in part, and *Hieracium murorum maculatum* is *H. hypochæroides* of Gibson; *Hieracium Lawsoni maculatum* has not acquired any other name on account of

its stained leaf, as far as I know, but is not uncommon in the localities for the unstained plant, or among garden seedlings from it. There is also a "maculatum" variety of *H. nigrescens*, &c., &c.

"*Hieracium denticulatum*" and "*Hieracium subaudum*."—The former of these plants was sent some years ago by Mr. Croall, from the "foot of Glen Dole, Clova, Forfarshire;" and the latter is sent by Dr. Mateer, from "Cove Hill, County of Antrim," Ireland. For my own part, I really feel uncertain by what names to call these *Hieracia*, but suspect they may belong to *H. inuloides*. I should be glad to learn what other botanists may think of them. The Clova specimens are very few.

"*Viola Curtisii*."—Mr. Sansom has sent specimens of a *Viola* from the sand-hills of the Cheshire coast, near New Brighton. It is the dubious form mentioned in my 'Cybele Britannica,' page 183; and still, even with the very good specimens from Mr. Sansom before me, I feel quite unprepared to say whether it should be labelled by the 'London Catalogue,' as *Viola tricolor intermedia* (186,c.) or as *Viola lutea Curtisii* (187,c.). The stipules are more lyrate than palmately pinnatifid, with the terminal lobe usually entire, occasionally crenate; thus combining characters which are supposed to distinguish *lutea* and *tricolor*.

"*Atriplex erecta*?"—Sent by the Rev. A. Bloxam, from the neighbourhood of Twycross, Leicestershire, thus interrogatively labelled. I think it most probably is the plant intended under that name by Hudson and Smith. It occurs abundantly in Surrey, but I have myself not collected it for distribution, through feeling uncertain how it should be labelled. Mr. Bloxam's specimens have been lying by for some years, and are now distributed rather to ask than to give information. What is the species?

"416,c. *Sedum reflexum* (Linn.)."—Under this name Mrs. Russell sends specimens collected on "Tremadoc Rocks, Carnarvonshire," by Miss Holland. Notwithstanding the name of "*reflexum*," it would seem from the addition of the letter "c" to the number of that species, that Mrs. Russell considers the specimens to belong to *S. rupestre*. By what name should they be called?

"*Tilia parvifolia* (Ehrh.)."—Sent by Mr. Roby, from Little Malvern. The leaves are larger and less angular than I have usually seen those of *T. parvifolia*; and the specimens being in the flowering stage, the character of the fruit cannot be ascertained from them. They are distributed as "doubtfuls;" but not in response to applica-

tions for *T. parvifolia* through the ordinary desiderata lists. No certain examples of *T. parvifolia* are in hand at this time for distribution.

"*Salix Hoffmanniana*?"—Mr. Notcutt sends specimens interrogatively labelled as this reputed species. Being only (female) catkins, without examples of the leaves, they will probably be of little use or assistance to any botanists; though, having been sent, the Society will distribute them with the other "doubtfuls."

In addition to the preceding, which are specimens put apart to be sent to members, whether applied for or not, there are some few others on which I should wish to make a few remarks, although their names are enumerated in the 'London Catalogue,' and the specimens will consequently be sent only to those who apply for them in the usual manner.

*Trifolium elegans* (Savi).—I found this trefoil last summer in a field of *Trifolium pratense*, left for a second or autumnal crop, at Claygate, in the parish of Thames Ditton, Surrey. Some years ago I found it under similar circumstances, in a field between Moulsey Hurst and East Moulsey Church. It is doubtless imported with the seeds of the clover; but being of smaller size and trailing habit, any chance plants of it would be concealed by the clover during the growth of the first crop, and again when the second crop had well advanced. *Barkhausia setosa* occurred in the same field at Claygate. The specimens of neither plant are so good as might be wished; the first mowing of the clover crop having mutilated the plants from which they were taken. By some error of pen or press the name of *Trifolium elegans* is followed by "L." instead of "Sav.", in the 'London Catalogue,' No. 1468.

*Viola lactea* (Sm. Herb.).—The Society has to thank Mr. Sansom for sending several specimens of another *Viola* from the Cheshire coast, which is very little known, or if known, ill-understood by botanists. By Mr. Sansom the specimens are labelled "*Viola flavicornis*." I have taken the liberty of writing also the name of "*V. lactea*, Sm. Herb." across the end of the labels. I have no doubt that both these names mean the same plant; the name of *flavicornis* (Smith) appertaining to a more dwarf state, and that of *lactea* to the very same plant (whether species or variety) in a more luxuriant or branching form. I carried some of Mr. Sansom's specimens to Smith's herbarium, and found them correspond very closely indeed with the tolerably good series of *V. lactea*, labelled as such in his herbarium. But it is equally true that some two or three of the most stunted among Mr. Sansom's specimens were undistinguishable from the ill-dried specimen of *V. flavicornis* in the same herbarium. Moreover, let any

unprejudiced botanical eye compare Smith's own specimen of *V. flavicornis* with the two smallest among his specimens of *V. lactea*, and that eye can scarcely fail to pronounce them identical. Mr. Forster is correct in referring the "Surrey violet" to *V. lactea* (see *Phytol.* ii. 964); and I am equally so in referring it to Smith's *V. flavicornis* (see *Phytol.* ii. 1021). Smith has described the same thing twice over, that is, under two names. In Babington's *Manual* it stands under three names; first, as a mere synonym of his "pusilla" variety of *V. canina*; secondly, under the name of "*Ruppia*;" thirdly, as a species distinct from *V. canina*, under Smith's name of "*V. lactea*." I think *V. lactea* (including Smith's *flavicornis*) will prove to be a species distinct from *V. canina* of Linneus.

*Enanthe silaifolia* (Bieb.?).—Plenty of excellent examples of this species have been sent by different members; though few of them are sufficiently advanced to show the form of the mature fruit. Some few of Mr. Salmon's specimens have fruit nearly full grown, and proving beyond all cavil that it has the callous base, and is nearly cylindrical in form, widely different from the figure given by Mr. Lees, and from the descriptions given by Ball. It is obvious from the *Manual*, that Mr. Babington still misunderstood this species even in 1847.

*Hieracium heterophyllum* (Bladon).—There are no duplicates of this for distribution; but from specimens kindly sent for my own herbarium and that of the Botanical Society, I think I may safely say that it is the *H. boreale* of Fries.

*Filago gallica* (Linn.).—This is the first time that British specimens of this very local, and perhaps not truly indigenous, species have been sent to the Society. They were collected by Mr. Varenne, in corn-fields, near Brerechurch, Essex, and doubtless will be desiderata with most of the members.

*Carex montana*, *Sisyrinchium anceps*, *Vaccinium macrocarpum*, *Luzula nivea*, and other rarities, native and introduced, have been liberally supplied by their respective discoverers. Of *Leersia oryzoides*, *Malva verticillata*, &c., the stock is scanty, and we must hope for more another season. *Tragopogon porrifolius*, *Lobelia urens*, *Helianthemum Breweri* and *ledifolium*, *Galium Vaillantii*, &c., &c., will still be in request, and the supply of these is plentiful, this year.

HEWETT C. WATSON.

Thames Ditton, January 19, 1848.

*Postscript.*—Since the foregoing pages were written, a supply of "*Hieracium heterophyllum*" has been kindly sent to the Botanical Society by Mr. Bladon; so that members will now have the opportunity of judging for themselves whether it is or is not the *H. boreale* of Fries. The limited supply of *Udora verticillata* and *Leersia oryzoides* has likewise been increased by the addition of some good specimens from Mr. Borrer, who sends the *Udora* from the second (Hampshire) locality.

I may likewise mention that the plant entered under the name of "*Ranunculus innominatus*," in the second edition of the 'London Catalogue,' is the species alluded to in the 'Phytologist' for last year (Phytol. ii. 854), and which is shown not to be *R. tripartitus* of Cosson and Germain's Atlas, by the difference of the fruit, which better corresponds with that of *R. hederaceus*. Mr. Westcombe has gathered the same *Ranunculus* in Cornwall.

HEWETT C. WATSON.

Thames Ditton, January 19, 1848.

*Notice of the 'Annals and Magazine of Natural History,' for the year 1847. Vols. 19 and 20, or Nos. 123 to 136.*

Two years ago it was strongly recommended by a friendly correspondent, that the 'Phytologist' should be rendered, "as nearly as possible, a complete record and index of all that is done or discovered in British Botany," (see Phytol. ii. 382). And notwithstanding the clandestine attempts occasionally made by some few self-interested and selfish individuals, in order to prevent others from sending articles to this journal, or in the vain hope of restricting its circulation and influence, the 'Phytologist' has kept on a steady advance towards accomplishment of the object proposed; so that it has now reached a point very little short of being the complete record recommended. Still, it cannot be wholly so without giving an occasional glance at the contents of such other periodicals as profess to be Journals of Botany also. Our notices of the more important of these, namely, the 'London Journal of Botany,' have been brought to the end of 1847. But our customary report of the botanical contents of the *Annals*, the only other journal in which Botany is anywise a prominent feature, have fallen much in arrear; partly from its contents including little that could be deemed of special interest to British botanists; partly from other calls on time and attention. In the course of the year, indeed, there have been some good articles on Botany in the *Annals*; although these are chiefly translations from foreign publications, and

interesting to British botanists only in so far as they concern themselves with general Botany also. The subjoined enumeration of the articles from the two volumes for 1847 will show this to be the case.

Vol. 19, or Nos. 123 to 129. "A Supplement to 'A Synopsis of the British Rubi,'" by Charles C. Babington. "On the Development of the Lycopodiaceæ;" translated from Muller's paper in the 'Botanische Zeitung.' "*Achillea tanacetifolia* (All.); its Discovery in England by Mr. John Hardy." "A Note on the Chinese Indigo," by Fortune; copied from the 'Journal of the Horticultural Society.' "On a Second Form of Fructification in *Peysonnellia Squamaria*," by C. Montagne, in a letter to the Rev. M. J. Berkeley. "Comparison of the Periods of Flowering of certain Plants in the early Spring of 1846, in the Botanic Garden of Belfast and the Jardin des Plantes, at Paris," by William Thompson, Esq. "Notice of a new species of *Dawsonia*," by Dr. Greville. "Note on the Tea Plant of China;" copied from Fortune's China. Account of some "Monstrous Roses;" copied from a newspaper.

Vol. 20, or Nos. 130 to 136. "On Conjugation in the Diatomaceæ," by Mr. G. H. Thwaites. "Notice of Plants collected in Canada," by Dr. P. W. MacLagan. "List of Plants gathered in Iceland," by Mr. C. C. Babington. "On the Power of the Living Plant to restrain the Evaporation of the Cell-Sap;" translated from a paper by Mohl in the 'Botanische Zeitung.' "On the Relative Duration of the Power to Germinate in Seeds belonging to different Families;" translated from a paper by Alph. De Candolle, in the 'Annales des Sciences.' "On the Parasitical Nature of the Rhinanthaceæ;" translation of Decaisne's paper in the 'Comptes Rendus.' "Observations by L. C. Treviranus, on the Structure of the Fruit of Cruciferae;" translated from the 'Botanische Zeitung.' "Description of two new Mosses from Jamaica," by William Wilson, Esq. "Diagnostic Characters of five new species of Cryptogamic Plants from Jamaica," by Dr. Thomas Taylor. "Description of some Grasses and Sedges from the East Coast of Demerara," by Sir Robert Schomburgk.

An article which describes plants not previously on record as natives of Britain should be the first to challenge the attention of those interested in British Botany. But we fear that the discovery of "new British Rubi" is so easily within the reach of any botanist who will carry home individual specimens to be described as such, that even novelty here may have only feeble attraction; unless it be for those half-dozen ardent and able botanists who have latterly devoted their attention to these proteiform pests of our hedgerows.



The occurrence of *Achillea tanacetifolia* near Matlock and Sheffield has been recorded in the 'Phytologist' (Phytol. ii. 674); and the paper of M. Decaisne has also been placed before our readers (Phytol. ii. 1025). None of the other scientific articles seem to call for any special notice here. The account of the "monstrous roses" may have an interest for botanists who look for the facts of morphology second or third-hand in the study; but the same or very similar monstrosities may be seen any season in our gardens.

The borrowed paper, intituled "Enemies to Science among the Nobles," refers to a matter of considerable interest to botanical collectors in the Highlands. We could wish the subject had fallen into better hands than those of that case-making vituperator of the Highland proprietors, who penned the article so little worthy of being reprinted in the Annals. We must certainly regret that the conversion of the wild wastes of the Grampians into deer-forests, to its other disadvantages should also add that of excluding botanists from some of their favourite haunts. But it is simply a question of law and right between the proprietors and the public; for the pursuit of Botany can give no peculiar right of way over the grounds of another man, either to professor or to student, over and above the rights which may appertain to them as individual members of the general public. It is mere calumny to designate our "Nobles" as "Enemies to Science," simply because they strive to preserve their own deer-forests undisturbed by the presence of strangers, and do not make a special exception in favour of students who go thither to collect plants. If such an exception were made in favour of those parties whose object is the pursuit of science, in any of its branches, the concession might be called liberal and graceful; but the withholding of it is at worst no proof of aught beyond simple indifference thereto. The author of the article contrasts the exclusions of the Highland proprietors against Prince Albert's two visits, in 1846 and 1847, to the meetings of the British Association: he would have done better to ascertain first whether the Prince's game preserves are open to the feet of botanists. The writer of this page is writing almost within sight of some of those preserves, and has found them quite as much closed as the Grampians are asserted to be; and very inconveniently to himself, by obliging him to make wide circuits for avoidance of them in his herborizing excursions. But who could be so stultified or so false as to call Prince Albert an "Enemy to Science" because he cares more for pheasants than for the amusement of botanists? C.

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*On the supposed Identity of the Muscus corniculatus of Gerarde with Asplenium septentrionale of Authors.* By HENRY BULL, Esq.

THE *Muscus corniculatus* of Gerarde (Ger. Em. 1561) is commonly given as a synonym for *Asplenium septentrionale* of authors. Should it be so? Gerarde says of his plant, "it riseth forth of the ground," whereas the habitat of *Asplenium septentrionale* is described by Sir J. E. Smith "*In fissuris rupium*;"\* by Mr. Babington "Dry clefts of rocks;"† and by Newman as "*only* in the fissures of rocks and the interstices of stone walls;"‡ and the plant is moreover further characterized by its growth—"in a horizontal position from a perpendicular surface."§

In colour the fronds of *Asplenium septentrionale* are described as "*atro-virentes*;"|| "dark green;"¶ "dark dull green,"\*\* "green throughout the winter,"†† but "every part" of Gerarde's plant was "of an over-worne whitish colour." The figure in Ger. Em. 1561, is undoubtedly that of *Asplenium septentrionale*. Johnson, however, tells us, "our author formerly gave another *figure* and *description* of this plant by the name of *Holosteum petreum*, which I have omitted, thinking this the better." The description (Ger. Em. 1561) applies admirably to any of the *Cladonia*, to *Cladonia uncialis*, perhaps, more particularly, and this I cannot but think was the plant intended to be described. It is indeed "of an over-worne whitish colour," or as Sir W. Hooker describes it, "pale yellowish white,"‡‡ very unlike the "dark dull green" of *Asplenium septentrionale*. There is evidently some confusion as to the figures, and it is not improbable that the one which was rejected by Johnson represented the true *Muscus corniculatus*, corresponding with *Cladonia* ——— ? whilst that retained is the figure of *Holosteum petreum*, corresponding with *Asplenium septentrionale*. The description having been omitted by Johnson, as he himself admits.

The name *Holosteum petreum* would indicate a rupestral plant, and the *Cladonia* might well be named the "little-horned moss" by Gerarde, who describes the allied lichens as "chalice moss," "cup moss," &c.

Gerarde's description of *Muscus corniculatus* has been already

\* Flor. Brit. iii. 1122.  
§ Id. 273. || Flor. Brit.

† Manual, 389.  
¶ Eng. Bot.  
‡‡ Eng. Flor. v. 235.

‡ Brit. Ferns, 269.  
\*\* Eng. Flor.  
†† Brit. Ferns.

quoted in the 'British Ferns,' I may, however, perhaps be allowed to quote it in this place.

"There is found upon the tops of our most barren mountaines, but especially where sea-cales are accustomed to be digged, stone to make iron of, and also where ore is gotten for tinne and lead, a certaine small plant: it riseth forth of the ground with many bare and naked branches, dividing themselves at the top into sundry knags like the forked hornes of a Deere, every part whereof is of an overworne whitish colour." From this it will be seen that no mention whatever is made of the capsules, which are said to cover the entire lower surfaces of the fronds of *Asplenium septentrionale* when mature, and which may well be thought too conspicuous to have escaped the notice of the generally very accurate Gerarde.

It may be further remarked that the great rarity of *Asplenium septentrionale* renders it extremely unlikely that so good a plant should escape detection in the many unlikely habitats that have been given for it by Gerarde, supposing it to be his *Muscus corniculatus*.

I enclose specimens of *Cladonia uncialis* from Cove Common, Hants.

HENRY BULL.

Portsmouth, January 20, 1848.

*On certain Forms or Species of Fruticose Brambles experimentally proved to be permanent.* By EDWIN LEES, Esq., F.L.S.

MR. NEWMAN states in his preface to the last volume of the 'Phytologist' that "Rubus still continues to be the most fashionable genus of British plants;" I am glad that it is so, as attention will thus be brought to bear upon the subject, which it hardly could be while ridicule was captiously or by insinuation heaped upon any botanist who proposed to designate particular and supposed permanent forms of Rubi as *species*. As I have been long unfashionable in the regard I have paid for many years to the fruticose Rubi, I may as well just dash on the current while the tide flows, and state my own experience from the examination of some thousands of plants in the living state. This I propose to do on an early opportunity; but as the subject has been mooted as to raising Rubi from seed, it is but fair to a humble, but honest and keen-observing man, to say that this has been already done in many instances. Let me then state the matter as it came to my knowledge.

Last summer, being with my friend Mr. W. Matthews, jun., spending a few days at Park Hall, near Kidderminster, a botanical excursion was proposed into Wyre Forest, and Mr. Matthews suggested that an old servant of Mr. Fryer's, of Bewdley, who was well acquainted with the Forest, should accompany us as a guide. This individual, whose name is Jordan, a most honest and trust-worthy person, has a good deal of time on his hands, and besides waiting upon Mr. Fryer, manages his gardening affairs. Mr. Fryer having kindly dispensed with Jordan's services, the old man came with us to look again at his favourite forest with great glee. But first of all he requested us to go to his garden, as he particularly wished me to see some brambles which he had raised from seed gathered in the forest, that he had carefully noted the bushes from which he took the fruit, and that in every instance the offspring precisely resembled the parent plant. I was delighted to hear this, more particularly as Jordan had not been trusting to any nomenclature in the matter, and might have thus mistaken a *name*; but as he truly said he knew all the brambles of the forest by *sight*, but their Latin designations were quite unknown to him. How long he had had brambles under cultivation I am unable to say, but he said that he always found that three years elapsed after planting the seed before the shrub produced flowers.

I understood from Mr. Jordan that after satisfying himself that the seeds produced plants quite similar to their parents, he had been in the habit of grubbing them up, as he was obliged to economize room, so that all he had experimented upon were not then under cultivation. Those that I saw and examined in the garden were as under:—

*R. sylvaticus*, W. & N.—Very characteristic, and precisely resembling the plants in the forest, as well as specimens I have gathered in Birchin Grove, Worcester. The very large leaves, green on both sides, of this form, and the stem trailing far upon the ground, render it very conspicuous in forest tracts. These leaves assume a brilliant red colour, and fade away long before the enduring, almost evergreen foliage of *R. fruticosus*. Totally distinct from any of the glandular brambles.

*R. subulstris*, Lees, (in Steele's 'Handbook of Field Botany').—This is the *R. corylifolius* of Babington, but being confounded by Sir J. E. Smith with *R. dumetorum*, W. & N., the term *corylifolius*, as deceptive, ought not in my opinion to remain. Weihe and Nees have it not in *Rub. Germ.*, referring Smith's plant to their *dumetorum*. The very smooth stem, however, only distantly armed, and the white pubescence of the leaves beneath, well distinguish it. The

flowers are often very large and specious. The garden seedling precisely resembled wild hedge plants. I should remark that I have a specimen of this in my herbarium named by Dr. Lindley as "perhaps *R. affinis*, *W. & N.*", and it is  $\gamma$ . *affinis* of Leighton's 'Flora of Shropshire.' All these *names* are truly puzzling enough to a student, and here the difficulty lies, but the plant remains the same, distinct enough to be known, if botanists would pore less over mouldy specimens, and look more to the growing plants in copse or hedge.

*R. hystrix*, *W. & N.*—Of all the glandulose Rubi, and their name is legion, this may be most certainly distinguished, as it is impossible to mistake its deeply jagged elliptical leaflets. It is also a very common plant. Nevertheless, Mr. Babington calls it *radula*, but I cannot but prefer the former name, as our plant agrees so closely with the plate of *hystrix* in *Rub. Germ.* Mr. Jordan stated his garden seedling to agree with its wild parent, and the only difference appeared to me to be the somewhat smaller panicle.

*R. fruticosus*, *Auct.*—This common bramble was the only one that exhibited any symptoms of variation. It was three years old, yet exhibited no signs of flowering, though it had grown up pretty high. Being in the shade, the leaves were green on both sides, so that the first aspect of the plant was different to the usual appearance of *fruticosus*. I have, however, seen wild specimens in dark spots very similar, and indeed, in shady places, *fruticosus*, as I have noted, will send forth barren shoots two years successively, without flowering.

As Mr. Jordan has further experiments in hand, I only now report progress as data for subsequent reasoning, and as proving that all is not barren of result even among brambles—"ferat et *rubus asper amomum*."\*

EDWIN LEES.

Cedar Terrace, Henwick, Worcester,  
February 2, 1848.

*Still "Further Remarks" on Viola flavicornis, in reference to those of Mr. Forster.* By HEWETT C. WATSON, Esq.

MR. FORSTER has done me the honour to notice (*Phytol.* iii. 31) a question which I found occasion to address to him, while defending my own views about Smith's *Viola flavicornis*, &c., which that gentleman had opposed in the 'Phytologist.' If the reply had been

\* Virgil, *Ec.* iii.

simply an answer to my real question, further discussion of the subject might have been better dropped between us; since any competent botanist might then have been considered in a position to estimate the sufficiency of the reply. Unfortunately, the intended answer shoots far wide of the question, through the mystification of including two different things under one name only. For this reason, I feel called to self-defence still.

I had stated certain characters (Phytol. ii. 1029) whereby *Forster's Viola flavicornis* differs from *Smith's Viola flavicornis*; and I then asked whether characters could be shown, whereby the disputed "Surrey violet" differs from *Smith's V. flavicornis* "to an equal degree?—or to any describable degree?" Mr. Forster replies to the latter moiety of the question, by saying that his two specimens of the "Surrey violet" differ from a specimen of the "dwarf violet" (*Forster's flavicornis*) in the form of their leaves. Thus, while I am asking for a distinction between A and B, Mr. Forster replies by stating a difference between A and C. No doubt this evading answer was made with perfect sincerity of intention, but it cannot be commended for its logic.

In contrasting A and C, however, Mr. Forster uses the words "as described by Smith," which are sufficient to intimate that B (*Smith's Viola flavicornis*) was not wholly absent from his ideas at the time, although confused with and subordinate to C (*Forster's Viola flavicornis*). I may presume, he intended to say that the difference which he finds between A and C, does also exist between A and B. On this presumption, I am to infer that Mr. Forster considers me wrong in referring the "Surrey violet" to *Smith's flavicornis*, because the leaves of the latter are said to be *cordate, obtuse*; whereas those of two specimens of the former are "ovate-lanceolate, not heart-shaped, though it is true that on one of them a leaf or two show a very slight tendency at the base to become so." (Mr. Forster's words).

Now, the leaves of the violets allied to *V. canina* are well known to be very polymorphous; and therefore I should scarcely have anticipated that so experienced a botanist as Mr. Forster would adduce this single character of two individual *specimens*, as a "describable degree" of difference between two alleged *species*, without previous inquiry about the constancy of the character. The two specimens sent to Mr. Forster, were such as I had loose by me at the time, and could I have foreseen the use which he would make of them, I should have warned him that two specimens could not show all the variations of form to be found in the leaves of the species to which they

belong. Indeed, I had expressly stated in my paper which called forth Mr. Forster's reply, that there is "great variety of form and size, both in leaves and flowers." Some time ago, other specimens of the "Surrey violet" were sent to Mr. C. C. Babington, who referred them to his "Ruppii," described with "cordate-ovate leaves." Smith says the leaves are "heart-shaped, obtuse." The descriptions of the three botanists run thus:—

SMITH;—cordate, obtuse.

BABINGTON;—cordate-ovate, slightly narrowed into petiole.

FORSTER (1);—ovate-lanceolate, subcordate at base.

Do. (2);—ovate-lanceolate.

Each of these is correct, but partially so. What are the facts from nature? My herbarium includes some thirty or forty examples collected in this neighbourhood; and I find their leaves ranging from perfectly cordate to ovate-lanceolate. Mr. Babington's term of "cordate-ovate" is a good average, and might be applied to the larger portion; but on several dwarfed specimens (corresponding with the example of *V. flavicornis* in Smith's herbarium) the leaves are truly cordate and obtuse. In conclusion, I beg to refer Mr. Forster to a paragraph on *Viola lactea* in the last 'Phytologist,' namely, vol. iii. page 47.

HEWETT C. WATSON.

Thames Ditton, February 3, 1848.

### *Occurrence of Carex punctata on the Cornish Coast.*

By THOMAS WESTCOMBE, Esq.

AMONGST the specimens which I collected in Cornwall last summer, I find that I have one of *Carex punctata*, *Gaudin*. Having been informed that the Cornish coast is a new habitat for it, and it being also a species which has but few recorded localities in this country, its occurrence there may be worthy of notice in the 'Phytologist.' The locality, as nearly as I can describe it, is by the side of the footpath on the face of the cliff on the coast south of St. Austel, and about three quarters of a mile westward of Charlestown.

T. WESTCOMBE.

Worcester, 2nd mo., 8, 1848.

*Cyperus fuscus erroneously supposed to be an Annual.*

By THOMAS MOORE, Esq.

I FIND it stated in Mr. Babington's Manual and Mr. Steele's Handbook, that *Cyperus fuscus* is an annual. This I believe to be an error; and I have come to this conclusion from the following direct and recent evidence.

In the autumn of 1847, I visited the Shalford locality of the *Cyperus*, and found it abundant enough, just coming into flower. The plant had what we gardeners are in the habit of considering as entirely the *appearance* of an annual. Some specimens were transplanted, and grew, and flowered finely, perfecting plenty of seed, and ultimately dying on the approach of winter. The experiment of raising plants from seed, and noting their duration, would, of course, be conclusive, but this I have not yet made; nevertheless, there seems no ground to believe that the *Cyperus fuscus* is only of annual duration.

THOMAS MOORE.

Camden Town, February 7, 1848.

## BOTANICAL SOCIETY OF EDINBURGH.

*Thursday, November 11, 1847.*—Dr. R. K. Greville, President, in the chair.

Numerous donations to the herbarium were announced since last meeting; particularly, large collections of North American and West India plants from Dr. Gavin Watson, Philadelphia, and Dr. Gilbert M'Nab, Jamaica; Iceland plants from Chas. C. Babington, Esq.; Gibraltar plants from Dr. Kelaart; English and Scottish from Dr. Dickson, Jersey, Professor Balfour, Dr. Robertson, and James Mitchell, Esq.; also a named collection of North American Grasses and Cyperaceæ, from Wm. Gourlie, jun., Esq. The thanks of the society were voted to the respective donors.

The following communications were read:—

1. Remarks on the Physical Geography of Styria, with particular reference to its Flora, by J. E. Oblach, Gratz. In this paper, the author gives an account of the meetings of the German naturalists, and shows their important bearing on the advancement of science. He then proceeds to describe the physical features of Styria. After



noticing the general aspect of the province, its geological formation, and the nature of its climate, as regards temperature and moisture, he alludes to its vegetation, as divided into a northern and southern Flora.

In the forests of Upper Styria, he states that the pine tribe prevails;—the species being *Pinus sylvestris* and *Picea*, *Abies communis*, *Larix europæa*, and in the higher regions *Pinus Cembra* and *Pumilio*; *Taxus baccata* occurs generally in scattered patches, but forms whole forests upon the Ketbeuze, near St. Lambrecht. Among the other trees of the district mentioned are *Fagus sylvatica*, *Betula alba*, *Acer Pseudo-platanus*, *Populus tremula*, *alba* and *nigra*, *Sorbus Aucuparia*, *Fraxinus excelsior*, *Alnus glutinosa*, &c. He then enumerates some of the Alpine species, and concludes by stating that the harvest in this part of the province is in September and October, and is not unfrequently gathered from under the snow; buckwheat forming the first crop. In Lower Styria the vegetation is of a less Alpine nature, but is very rich. The vine and maize are universally cultivated, and buckwheat forms the second crop.

2. Dr. Greville exhibited beautifully prepared specimens of (nearly) all the British species and varieties of the genus *Sphagnum*, and gave a verbal notice regarding them.

3. A specimen of *Phalaris utriculata*, gathered by J. Hussey, Esq., in the corner of a corn-field near Swanage, Salisbury, was exhibited. The specimen was sent by Dr. Hole, a non-resident member of the society.

4. Beautiful specimens of *Pimpinella magna*, from the banks of the Teith, Perthshire, were sent by Dr. Dewar, who discovered it. This plant occurs in many places in England and Ireland, but this is the only known Scottish locality. Sir J. E. Smith mentions a Scotch specimen as existing in Bruce's herbarium, but gives no particular habitat.

5. Dr. Balfour mentioned the discovery of *Carex leporina* near the summit of Cairn Toul, between three and four thousand feet above the level of the sea, by his party, on the 14th August last. This is the second known station for the plant in Britain.

6. Specimens of *Anacharis Alsinastrum*, *Bab. MSS.*, found near Market Harborough, Leicestershire, by Miss Kirby, were shown in a living state; and a dried specimen of this new British plant was presented to the Society's herbarium by Mr. Babington. A full description will be afterwards given.

7. Read a communication from W. Wilson, Esq., on *Pilotrichum*

funale and *Omalia lentula*, two new mosses from Jamaica, transmitted by Dr. G. M'Nab.

8. Descriptions of *Plageochila subbidentata* and *Parmelia ochroleuca*, two new lichens also sent by Dr. M'Nab from Jamaica; and of *Leskea angustifolia*, *Phragmicoma affixa*, and *Radula Grevilleana*, new species from Jamaica in Dr. Greville's herbarium, by Dr. Taylor, Dunkerron; specimens were exhibited to the meeting.

Mr. Absolon sent a large specimen of *Lolium temulentum* from fields near Forfar.

*Thursday, December 9, 1847.*—The Rev. Dr. Fleming, President, in the chair.

Donations to the herbarium were announced from Mr. O. W. Sonder, Hamburg; Mr. Joh. Lange, Copenhagen; Dr. Jessen, Kiel; Mr. J. T. Syme, Edinburgh; and Mr. P. Gray, Dumfries.

The following communications were read:—

1. On *Anacharis Alsinastrum*, a new British Plant, by Charles C. Babington, Esq., with a Synopsis of the other Species of the Genus, by Dr. J. C. Planchon.

2. On the Reproduction of Cryptogamic Plants, by the late Wm. Stark Dougall, Esq., communicated by Dr. Balfour.

The first part only of this paper was read, viz., "On the Mode of Formation of Spores in Algæ and Characeæ."

In the introductory remarks the author examines the opinions entertained by botanists as to the existence, in these plants, of bodies equivalent to the stamens and pistils of the higher orders of vegetables. The arguments in favour of their existence are, the presence in the same or different individuals of two kinds of cells, the union of which in some way appears to be necessary for the production of germinating spores. These cells sometimes exist in the same cavity, so that the functions cannot be always easily detected. At other times they are separate. In the latter case, the spores are occasionally produced by the actual conjugation of two individuals of the same species. The spores, when first discharged, frequently exhibit ciliary movements, like those seen in the ova of animals. And lastly, the cells representing anthers often contain Phytozoa, or moving bodies similar to the Spermatozoa of animals.

The reproduction of Algæ is then brought under consideration as observed in Diatomaceæ and Confervaceæ, with their cell-division, conjugation and development of endochrome; in the Fucaceæ and Ceramiaceæ, with their antheridia, spores and tetraspores; and in Characeæ with their globule and nucule.

In regard to the latter tribe, the following points are noticed as favouring the opinion that the globule may be compared to an anther and the nucule to the pistil. Their co-existence and close proximity—the opening of the valves of the globule to allow the escape of filaments and Phytozoa (similar to those of Fuci, which Thuret and Decaisne have shown to be connected with staminal functions)—the existence of an opening at the apex of the nucule allowing communication with the interior—the capability of germination in the contents of the nucule when mature—and the decadence of the globule prior to the ripening of the nucule.

The second and third parts of the paper on the reproduction of the other orders of cryptogamic plants were deferred till a future meeting.

Dr. Balfour read a communication from Mr. Charles Lawson, jun., relative to the cultivation of potatoes by cuttings of the herbaceous stems. Six cuttings were planted on 16th June, 1847, kept in a warm frame for six weeks, then planted out, and they produced twenty tubers of very considerable size, one of which was exhibited. The communication was accompanied by a report from Mr. Alexander M'Laren, gardener to the Dowager Marchioness of Queensbury at Coten House, in which he states that he potted green cuttings in February, 1847, three in a No. 4 pot, in a mixture of leaf-mould and light loam. He then plunged them into a bottom heat of 75°, taking care to shade them from the sun, and also to water them three times every day. On 23rd April he found tubers of the size of a walnut.

Mr. Brand read an extract from a letter from W. A. Stables, Esq., relative to the plantations recently made on Lord Cawdor's estate in Nairnshire. "The forester planted 230 imperial acres in nine days, fifty-seven women and boys being employed each day, and the average number of trees planted by each was 1566 a-day. Two-thirds of the plants were larch, and the remainder Scotch fir—in all, 3465 plants per acre. The plants were two-year-old seedlings, all raised in the gardens here. The cost of enclosing was £75 6s. 10d., and of planting £16 8s. 8d.—together, £92 5s. 6d., or about 7s. 7d. per acre of outlay."

The following gentlemen were added to the roll of ordinary members: James Mitchell, Esq., 21, Lothian Street; Charles Murchison, Esq., 9, Alva Street; Wyville Thomson, Esq., Musselburgh; Francis J. Ivory, Esq., 9, Ainslie Place; Henry P. Morse, Esq., 3, Duncan Street; Alexander Grant, Esq., 34, London Street; James Cunningham, Esq., W.S., 50, Queen Street; Henry Hewetson, Esq., 113, Princes Street; and Dr. C. Jessen, Kiel, Denmark, and Joh. Lange, Copenhagen, were elected foreign members.

Dr. R. W. Falconer, Tenby, was appointed local secretary for Pembrokeshire, and Mr. Lange, Copenhagen, for Denmark.

At this meeting the election of office-bearers for the ensuing year took place, when the following gentlemen were unanimously chosen : Rev. Dr. Fleming, President ; Drs. Greville, Balfour, Christison, Neill, Vice-Presidents ; Sir William Jardine, Dr. Seller, Dr. Lowe, Mr. W. M'Nab, Mr. C. Lawson, jun., Prof. Allen Thomson, Mr. J. Marshall, jun., Mr. R. Holden, Mr. William Ivory, Mr. W. Wright, Councillors ; Mr. Brand, Treasurer ; Professor Goodsir, Secretary ; Dr. Douglas MacLagan, Foreign Secretary ; Dr. Parnell, Curator of Museum, &c. ; Mr. J. M'Nab, Artist ; Mr. Evans, Assistant Secretary and Curator.

*Thursday, January 13, 1848.*—The Rev. Dr. Fleming, President, in the chair.

Donations to the library and museum were announced :—1st, books from the Leopoldine Academy ; M. Alphonse DeCandolle ; and Dr. M'Fadyen, Jamaica. 2d, specimens of rare English plants from Dr. Balfour ; Scottish Alpine plants from Mr. C. Murchison ; a large collection of plants from the Society Islands, from Dr. Archd. Sibbald, of H.M.S. *Grampus*, and Portuguese plants from Sir Walter C. Trevelyan. Among the latter were some marked as having been collected in the streets of Cadiz and Lisbon, viz., *Frankenia pulverulenta*, *Illecebrum echinatum*, and *Hippia stolonifera* ;—these plants are remarkable for their habit of flourishing in the interstices of the paving stones of much frequented thoroughfares, but growing so close to the ground that they are but little injured by the feet of passengers. The collection also contained specimens of *Statice lusitânica* from Persoon's locality.

The following communications were read :—

1. On the Reproduction of Cryptogamic Plants, by the late William Stark Dougall, Esq., continued. Part second, mode of formation of spores in Fungi, lichens, Musci, and Hepaticæ. In this part of the paper the author first considered the reproductive organs in the various divisions of the natural order Fungi ; and pointed out the analogy which they bear to Algæ in many respects. Thus in the lower members of the order the mode of reproduction may be compared to that observed in Confervaceæ, both as regards the development of spores and their movement. In other cases the formation of spores at the dilated ends of filaments or sterigmata, resembles in some degree what takes place in *Vaucheria*. He regarded the filamentous paraphyses

as being concerned in the fertilization of the contents of the asci and basidia.

He next noticed the natural order Lichenes, and considered the production of spores, whether naked or in asci, which are united in the form of apothecia; and of the round green bodies called gonidia or gongyli, which are either single or in groups. He stated that little was known in regard to the formation of the latter bodies, and that the subject of reproduction in lichens was still very obscure; although it might be said to resemble that of some Ascomycetous fungi.

The Ricciaceæ, Marchantiaceæ, and Jungermanniaceæ, were next brought under notice. In these orders, organs which appear to be equivalent to stamens and pistils were pointed out, as well as certain bodies which might be reckoned as buds or gemmæ. The presence of Phytozoa with cilia, and of spiral fibres or elaters, was also remarked.

The Equisetaceæ were looked upon as in many respects allied to the last-mentioned orders, especially in developing spores with spiral filaments.

The true mosses were then alluded to, and in them the author believed that re-productive organs have been demonstrated in the antheridia with their granular contents and Phytozoa, and the thecæ or sporangia with their spores. He detailed the various species in which Phytozoa had been detected by Thuret, Brongniart, Meyen, and Unger, pointed out the monœcious, dicecious, polygamous, and hermaphrodite arrangement of the organs, noticed the difference between spores and gemmæ, and concluded by stating the following arguments in favour of the sexual nature of the spore-formation in the whole muscal alliance:—1. The existence of antheridia and pistillidia, and the production of true spores by the latter. 2. The existence of Phytozoa in the antheridia. 3. The relation of antheridia and pistillidia to one another in point of periodicity, both as regards development and function. 4. Their relative arrangement, either together or separate, on the same or on different individuals. 5. The provisions by which the coming in contact of the contents of the antheridia with those of the pistillidia may be effected.

The paper was illustrated by a series of magnified drawings from Dr. Balfour's collection.

2. On the Ovule of *Euphrasia officinalis*, by George Dickie, M.D., Lecturer on Botany, King's College, Aberdeen.

In this paper Dr. Dickie gives a general view of the recent observations relative to the fertilization of the ovule and the formation of the

embryo, and considers, in a particular manner, the formation of ovular tubes in *Euphrasia*. These tubes, which he formerly considered as being prolongations of the apex of the nucleus, he now finds to originate from the interior of the embryo-sac. He has observed the tube within the sac, but has not been able to determine fully its relation to the very minute embryo, although, in one instance, there was the appearance of a connexion between them. He also noticed a remarkable flask-like appendage to the neck of the sac, which he thinks may be similar in its nature to the varicose appendages observed by Planchon in *Veronica*. In the latter plant the sac becomes external, but this is not the case in *Euphrasia*. The tubular filamentous appendage in the plant under consideration, he conjectures, may be a prolongation of the terminal joint of the suspensor.

Dr. Dickie concludes by stating, that he considers the early, or what he denominates the sporoid, stage of the embryo, to be independent of the contact of the pollen-tube with the embryo-sac, although the future stages of development may be determined by the action of the pollen.

3. Dr. Fleming exhibited a specimen of the stem of *D'Urvillea utilis*, *Bory*, from Acapulco, and made some remarks on the peculiarity of its structure, more particularly as regards its transverse partitions and large air-cells. He illustrated his remarks by drawings of the entire plant.

4. Dr. Dickie communicated the discovery of a new Diatomaceous plant, allied to *Meloseira*, in the neighbourhood of Aberdeen. It is the *Orthoseira* of Thwaites, and will be published under the name of *O. Dickiei*. Specimens were exhibited under the microscope by Dr. Balfour. The plant forms a sort of infusorial earth in the place where it occurs. Dr. Dickie also announced from Mr. Thwaites the discovery of a new species of *Dickieia*, consisting of binate frustules at the end of mucous appendages, like the *Omacoccus* of Hassall.

Dr. Bell Salter communicated the discovery of *Zostera nana*, in large quantities, on the shores of the Isle of Wight, near Ryde.

Mr. Babington sent notice of the following plants having been added to the British Flora, since the publication of the second edition of his Manual, specimens of all of which are in his possession, viz.: *Thalictrum minus*, *b. glandulosum*, *Koch*; *Ranunculus Petiveri*, *a. Mairii*, *Godr.*; *b. Candollii*, *Godr.*; *Sagina ciliata*, *Fries*; *Campanula rotundifolia b. lancifolia*, *Koch*; *Simethis bicolor*, *Kunth*; and *Carex brizoides*, *Linn.*

Dr. Balfour exhibited specimens of *Ceramium acanthonotum*, from the shores of the Frith of Forth.

Mr. James M'Nab announced the death of Mr. James Smith, of Monkwood Grove, near Ayr, at the advanced age of 88. Mr. Smith has long been known as a scientific gardener, and did much to diffuse a taste for Botany in the district where he so long resided.

The following gentlemen were elected ordinary members of the Society, viz.: Robert Heddle, Esq., 13, Dundas Street; Henry L. Williams, Esq., 15, Dundas Street; and William Gilby, Esq., 30, Northumberland Street. Professor J. E. Wikstrom, Stockholm, was elected a foreign member.—*W. W. E.*

#### BOTANICAL SOCIETY OF LONDON.

*Friday, February, 5th, 1848.*—John Reynolds, Esq., Treasurer, in the chair.

Donations of British plants were announced from Mr. David Moore, Mr. J. W. Salter, and Mr. F. H. Goulding. Edward Phillips, M.D., F.L.S., of Coventry, Mr. John Dorrington, M.A., of Linton, Cambridgeshire, and Mr. Fenton J. A. Hort, of Trinity College, Cambridge, were elected members.

The following papers were read:—

"On Ergot," by Mr. S. P. Woodward, A.L.S.; "On the Potato Disease," by Dr. G. M. Scott; "On the Potato Disease," by Mr. T. Austin, F.G.S.—*G. E. D.*

*Notice of 'The Flora of Forfarshire. By WILLIAM GARDINER. London: Longman & Co. 1848.'*

THE true uses and objects of a local flora are so simple and familiar as to render it a somewhat remarkable circumstance that there should be so very little of uniformity among the volumes published under the title. Diversity of matter, both the included and the excluded, diversity of form and method, both typographical and scientific, seems to be the only constant rule. Instead of following the best previous model, or improving upon it, each succeeding author strives only to differ therefrom. Instead of uniformity or superiority, the great effort

is to achieve dissimilarity. And yet amid all this diversity how very little can we find either of originality of thought or of genuine novelty of treatment in these works! Old forms and ideas are reproduced in different combinations, insuring the disadvantages of change, without the compensation of improvement.

The explanation of this state of matters, we take it, will be found in the narrow notions with which the authors of most of our local floras have set about their tasks. Few of them appear to have ever conceived the idea for themselves, or even to have imbibed it on 'the suggestion of more comprehensive thinkers, that a local flora should be also a sectional flora,—that it should be not only a small whole in its local uses and purposes, but also a part of something larger and wider, and such a part as might be united uniformly and congruously with the other parts into the one greater whole. So far from these two objects being incompatible, or difficult to combine in a single work, it seems to be a non-apprehension or non-appreciation of their related fitness, on the part of authors, which has given so much of the chance-medley diversity to the published local floras. The works of this class have hitherto been simply collections of facts, or what were supposed to be facts; and these facts having been seldom recorded with any ultimate aim or object beyond the mere record, they have naturally assumed the local character in its narrowest sense, that of petty and isolated individualities.

The essential requisites in a local flora may be shortly summed up as follows. 1st, it should relate to a definite area, such as a single county or section of a county, which has been well and carefully examined by the author of the flora himself, and the physical features of which ought to be briefly described in his work. 2ndly, a full list of the species which have been ascertained to grow wild within the area fixed upon, invariably and clearly distinguishing from the rest, by difference of type or marks and suitable explanations, all those about which there may be any uncertainty of any kind. 3rdly, the times of flowering of the species, their usual situations of growth, and their comparative frequency or rarity,—all given from actual observation within the area under consideration, and not transcribed from other publications which relate to a different or more extended tract of country. 4thly, the localities of the less common species, more or less minutely described, as circumstances may render needful in the particular cases; but always with the authority for any locality which does not rest upon the eyes of the author himself; as also with a distinction between those localities which are given on report solely, and



those which have been further certified to the author by the evidence of specimens alleged to have been gathered there.

All these items of information should be considered essential in every local flora. Any such publication, in which any of these requisites are wanting or imperfect, is to that extent bad and defective, whatever may be its merits in other respects. Additional information of various kinds may often be advantageously introduced; and under certain circumstances the omission of some other kinds of information would be scarcely less a defect than the exclusion of any of the above specified matters. But the necessity for such additions may be considered special, not general,—a distinctive peculiarity for the district or its botany, be they topographical, historical, scientific, personal, or otherwise. By way of example, we may instance the case of a flora which relates to a mountainous tract, in which the range of altitude for the several species should be indicated as nearly as can be done, at least by successive stages or zones of elevation, if not by measured altitudes. Or, as another example, let us take the case of a flora which treats about the plants of some county or tract, within which there have been suspicious localities or dubious species placed on record, and rendered questionably historical; all of which should of course be carefully investigated, in order to their verification or correction.

There are some additions, and those pretty frequently introduced into local floras, which may be deemed purely optional with the author; and these will consequently be given or omitted in accordance with his own personal views and tastes. In a general way, the optional additions, introduced to gratify the whim or taste of the individual author, will be found to render the work less acceptable to other parties; because they must increase the bulk of the book, add to its cost, and obscure to some extent the essential points of information, without giving equivalent advantages to the purchasers. Among these purely and personally optional additions we would place scraps of poetry, unnecessary references, descriptions of well known species or genera, &c., &c.

Were we to measure the 'Flora of Forfarshire' by our standard above given, assuredly we should find occasion to curtail its dimensions very much, on the balance between matters to be added and matters to be omitted. Of the existing contents we would right willingly dispense with two-thirds, as being either simply superfluous or merely irrelevant; while to the reserved one hundred, out of three hundred pages, we might then add some fifty more pages in order to

include other matters the omission of which we must regard as an actual defect in the work. But we are not wishing to censure this publication just because it is not found to harmonize with our own individual standard of perfection. Whether taken by itself and for itself, or viewed in comparison with other volumes of its class, the 'Flora of Forfarshire' may be honestly pronounced a work creditable to its author's abilities and taste, and an useful contribution to science; and while it exhibits occasional defects and inaccuracies, these are much more than counterbalanced by that which is accurate and valuable.

Among the recommendations of the work, we may probably say that it gives a very full list of the plants, cellular as well as vascular; the latter likely to prove almost a complete list for the county. They are arranged by natural orders, which every local flora ought to be, as was long since particularly urged on local authors by the illustrious Humboldt, the laborious collector and *connector* of local facts in Natural History. Generally, too, the author appears to have written with truth and good faith his opinions respecting the nativity or otherwise of the species, and the reasons for supposing them to be one or the other. And when we look at the reprehensible custom with many other local writers, of straining the truth for the silly vanity of making their district (or its flora) appear rich in botanical rarities, we must regard the greater sincerity of Mr. Gardiner with no small approval. Some notices are occasionally given about the range of altitude over which the species extend, and we could wish they had been more frequent and more precise.

Among the superfluities we would particularly instance a most unreasonable quantity of poetry, irrelevant in a scientific publication, and not of high quality in its own character, being either feebly pretty versifications, or poems of higher mark which have been rendered stale by reiterated quotation. Thus, *Hypericum pulchrum* and *Bellis perennis* usher in some sixty lines of verse apiece; *Primula vulgaris* and *Rubus fruticosus* have over thirty lines each; some two dozen lines are devoted to *Myosotis* in general or generically, and then the *Myosotis alpestris* has near three dozen more for its own particular share,—being mentioned probably for the purpose of bringing in the verses, as that species has not been found in Forfarshire. Numerous other plants are be-tailed with their half-dozen, or one dozen, or two dozen lines of rhyme. Another superfluity is seen in the running references to the pages of Hooker's 'British Flora' and Babington's Manual for each species in succession; as if anything more could be

required for identification, than the giving of synonymes for those species which stand under a different name in the 'Forfarshire Flora.' Nor are these two kinds the only superfluities which might better have been omitted.

Among the defects we reckon the want of regular and sufficiently precise notices relating to the range of altitude for the species. Probably the requisite time and care could not be devoted to actual measurement with instruments; but successive zones might have been adopted, after the example of Wahlenberg, Webb, Watson, and many others; or, failing the power of generalising thus far, the extension of the species inland from the coast, into the glens, and up the mountain acclivities, or to their table-lands, might have been readily indicated in the form of individual facts. In some instances the alleged time of flowering must have been borrowed from the general floras; at least it has been entered *not* on the author's own observation within the county. Various localities are cited on the authority of parties whose names we have never before met with among those of botanists; and being thus quite unprepared to estimate the reliance which may be placed upon their knowledge of plants, we greatly miss the needful intimation whether the author of the Flora had, or had not, seen a specimen of the species from the alleged locality for it. In looking at the species enumerated or commented on under certain genera, such as *Bromus* and *Hieracium*, we cannot escape a conviction that some grave errors have been committed, perhaps attributable to the disadvantages attendant on a provincial residence, far from good botanical libraries and standard herbaria. It is to be regretted also, that the author should not have had the advantage of studying the second editions of Newman's *Ferns* and Babington's *Manual* before printing his own volume. The fifth edition of the 'British Flora,' which is Mr. Gardiner's standard for nomenclature and species, was scarcely brought up to the existing state of botanical knowledge in Britain at the date of its publication, in 1842; and since that time no inconsiderable progress has been made in correcting errors and adding to knowledge on the subject. We regret, also, to see how very little the author of the 'Forfarshire Flora' has been able to effect towards solving the doubts respecting many of Don's plants and localities. Indeed, several of the most dubious county plants are given without a word of doubt or uncertainty, as if their existence there were a point clearly ascertained and admitted. One of the first species concerning which we sought information from the Flora, was *Centaurea Jacea*. It is enumerated among the Forfarshire plants

without a word of comment, and in such form as to make it appear a genuine native.

Various circumstances combine to give more than ordinary interest to a 'Flora of Forfarshire.' Wide diversities of elevation, and consequently of climate, within an area of small extent, offered excellent opportunities and facilities for giving a philosophical character to its published Flora. The botanico-historical and scientific interest which attaches to its localities, through the discoveries of Don, the writings of Smith, and the recorded visits of the Scottish professors and many other distinguished botanists, also add no little to its botanical importance. It is the consideration of such circumstances as these which has given a more general character to our present remarks; and lest it be thought that Mr. Gardiner's volume has suffered by being thus subjected to a more trying comparison than usual with such local publications, we take leave to repeat our honest conviction that, if taken by itself, apart from such considerations and the remarks which may have flowed from them, the 'Flora of Forfarshire' is a valuable and acceptable addition to the published records of British Botany.

C.

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*Remarks on certain "Excluded Species" placed at the end of the 'London Catalogue.'* By JOSEPH SIDEBOTHAM, Esq.

AT the conclusion of the second edition of the 'London Catalogue' is a list of *excluded species*, in which I am sorry to see the names of several favourites, besides a considerable number of species which I always considered on the authority of others as fully naturalized. Would it not be well for every reader of the 'Phytologist' to look over the list, and if he can restore any of the species to an honourable place in our flora, to do so through the medium of its pages?

Allow me to notice one or two.

*Oxalis stricta*.—I know little of the localities for this plant in the south of England. Mr. Ralfs sent specimens some years ago, which were the first I ever saw: they were from the neighbourhood of Penzance. It is rather a common plant here, occurring as a weed in many gardens and nursery-grounds. In some gardens and potato-fields near Didsbury it is quite a troublesome weed, and my late friend E. S. Wilson found it equally common in the neighbourhood of Congleton.

*Gentiana acaulis*.—Mr. Townley, of Manchester, gathered this plant several times on sand-hills near Liverpool, where he described it as growing in abundance, far apart from any cultivation. I have seen and possess some of his specimens which were brought in a living state to the late Mr. Crozier.

*Datura Stramonium*.—Ought we not to consider this plant as fully naturalized as any of our occasional visitors? I have known several instances in this neighbourhood and near Nottingham where it has made its appearance in considerable quantities, where land has been cleared for building, &c.

*Castanea vulgaris*.—Surely this ought not to be excluded and the poplars retained in our lists. If a thousand years' residence in one country is not sufficient to naturalize a species, I fear many others must be similarly banished.

J. SIDEBOTHAM.

Manchester, February 16, 1848.

<sup>v</sup>  
*Notes on Shropshire Rubi*. By the Rev. W. A. LEIGHTON, B.A.,  
F.B.S. E. & L.

IN publishing a series of dried specimens\* of brambles in illustration of my 'Flora of Shropshire,' it may be perhaps useful to those who possess both these works, as well as to botanists generally, if I insert in the pages of the 'Phytologist' a few notes explanatory of the changes which the valuable researches of Messrs. Babington, Dr. Bell Salter and others have rendered necessary, and the additional knowledge and information which continued investigation in this perplexing genus has brought to light.

In doing this, as every trivial distinguishing mark between various forms in so difficult a genus seems, in our present unsettled state of knowledge, worthy of being noticed, I purpose to set down such characters as I have observed, which, if constant, may prove useful as points of discrimination. They have been gathered from a comparison of a tolerably extensive collection of our British forms, and are offered, not in a decided tone of absolute certainty, but are rather thrown out as hints to students, to test them on the living plants, and

\* I may as well take the opportunity of stating that a few copies of the 'Fasciculus of Shropshire Rubi' still remain on hand, and may be had on application to the writer.

if found to be correct to adopt and use them; if otherwise, to reject or correct them. I therefore would wish them to be received and understood in the spirit of Linnæus's mind when he penned the following words: "Quamquam multas observaverim plantas et sedulo quidem, tamen non confido me semper veritatem invenisse."

1. *R. Idæus*, Linn.—I am not aware of any change here.

2. *R. suberectus*, And.

This includes *R. suberectus* and *R. plicatus*, *Fl. Shropsh.* 223. At the time of the publication of the *Fl. Shropsh.* I was not acquainted with the true *suberectus*. But having subsequently an opportunity of showing my friend Babington the plant described as *plicatus* in the *Flora*, in its native locality, he at once recognised it as the true *suberectus*. The synonymy of this species as regards our Shropshire *Flora* will stand thus:—

*R. suberectus*, And.

*R. suberectus* and *R. plicatus*, *Fl. Shropsh.* 223. *R. suberectus*, *And. Linn. Trans.* xi. 218, t. 16. *E. Bot.* t. 2572. *E. Fl.* ii. 406. *a. Bab. Syn.* *R. suberectus* (not of *And.*) *Lindl. Syn.* 2nd ed. 92.

The specimens sent by Mr. W. Wilson from Woolston Moor, Lancashire, mentioned in *Fl. Shropsh.* 224, are referred by Mr. Babington to *plicatus* (*Bab. Syn.*).

The sharply pointed, rather elongated and mucronate, double serratures, all directed more or less forward to the apex of the leaves; the prickles of the barren stem confined to the angles, few and distant, short and stout, arising from a dilated base, which they scarcely exceed in length; may be perhaps, as characteristic marks of this species, added to the "attenuated base of the floral leaves," as pointed out in Babington's *Synopsis*.

Of this plant specimens are given in the 'Fasciculus of Shropshire Rubi.'

3. *R. fissus*, *Fl. Shropsh.* 225.

This plant Lindley identified as *R. fissus* of his *Synopsis*, 2nd ed. p. 92, but Babington, in his *Synopsis*, rather questions their identity; inclining to believe this a state of *suberectus*. Be this as it may, I have never seen anything as yet in the plants themselves, which grow together in the same locality, to shake my opinion as to their being distinct. The habit and general appearance of the two plants when seen together are totally different. The colour of the fruit is similar in both, as Babington describes it, "atro-sanguineus:" but the calyx is reflexed in *suberectus*; erecto-patent in *fissus*.

Perhaps as one general characteristic mark distinguishing this from *suberectus*, I might mention the prickles of the barren stem not confined to the angles, very numerous and near together, long and very slender, arising from a very short, contracted base, which they twice or more exceed in length.

Specimens of this are given in 'Fasciculus of Shropshire Rubi.'

4. *R. plicatus*, W. & N.

The specimens given in the Fasciculus of this species are not those of the Fl. Shropsh., but identical with *R. plicatus*, Bab. Syn. I did not know this plant when I published the Flora. For some distinctive marks see under *R. affinis* below.

5. *R. affinis*, W. & N.

I believe the specimens of this species given in the Fasciculus are the true *affinis* of W. and N., Rub. Germ. t. 3, p. 18. My friend Babbington kindly concedes me the priority of detecting this addition to our Flora, though only so by a few days. It is, however, highly satisfactory that we arrived at the same conclusion from an examination of plants from different and far distant localities.

This plant is not identical with the *R. affinis* of Fl. Shropsh. 226; the var.  $\beta$ . of which work is now referrible to *R. cordifolius* of W. and N. and Bab. Syn., and the var.  $\gamma$ . to *R. corylifolius* of Smith and Bab. Syn., as will be noticed under those species hereafter.

I would offer the following description:—

*R. affinis*, W. & N.—Stem suberect or arcuate, angular, nearly glabrous; prickles strong, slightly deflexed or declinate; leaves 5-nate, green on both sides, with silky pubescence underneath, plane at the base, somewhat wavy towards the apex, coarsely crenato-cuspidato-serrated, lowermost stalked; panicle compound, leafy, tomentose upwards, branches cymose, erecto-patent, prickles more or less deflexed; sepals reflexed in fruit, with a long, acuminate point. — *Rub. Germ.* t. 3, p. 18.

HAB.—Shawbury Heath; Haughmond Hill; Gamester Lane, near Westfelton; hedges of Shrewsbury turnpike road, near Westfelton; hedges of Holyhead road, near Bicton Grove, near Shrewsbury; all in Shropshire.

Barren stem suberect, sometimes elongated and arching, angular, furrowed, dark purple, glabrous, or with a few scattered weak hairs. Prickles confined to the angles, large and strong, generally straight and declinate, though sometimes slightly deflexed, from a broad, dilated, compressed, purple base, yellow at the tips. Leaves digitate,

5-nate, on slightly hairy, purple petioles, armed with numerous strong, long, hooked prickles, purple at the base, yellow at the tips. Leaflets moderately coriaceous, yet flexible, plane at the base, more or less wavy on the margins towards the apex (in a young or not fully expanded or developed state very plicate), all stalked, dull green and nearly glabrous, or with only a few scattered hairs above, paler, tomentose, and with soft, silky, shining pubescence beneath, veins prominent, the midrib armed with a few stout, hooked prickles, not so long or stout as those on the petioles. Terminal leaflet large, broadly cordato-ovate or even orbiculari-cordate, generally shortly cuspidate, coarsely crenato-cuspidato-serrated: intermediate pair irregularly roundish-obovate; lowermost narrower, oblong. Stipules linear, with a long point, hairy. Flowering stem angular, with scattered hairs below, which become denser and even tomentose above. Leaves ternate below, large and simple above, becoming narrower as they approach the extremity of the rachis. Panicle compound, leafy, branches cymose, ascending, erecto-patent, hairy, the secondary branches and pedicels hairy and densely tomentose. Prickles large, from a broad, compressed base, rather numerous, deflexed below, straighter and declinate in the upper part: those of the secondary branches and pedicels slenderer and more crowded, more or less curved, or even nearly straight and declinate. Sepals densely tomentose and hairy, white, and with a few short, slender prickles without, white and densely tomentose within, with a long acuminate point, strongly reflexed in fruit. Petals white. Fruit black.

This plant seems allied on one side to *R. cordifolius*, and on the other to *R. plicatus*, though readily distinguished from both. The somewhat plicate leaves, which are of a very different cordate form, easily perceived on comparison, but difficult to express in words, and their differently formed and much coarser serratures, the cymose panicle, and the strong, deflexed prickles on the panicle and flowering shoot, separate it from *cordifolius*, in which the leaves are flat and less coarsely serrated, of a different cordate outline, the barren stems always arcuate, and the prickles on the rather long panicle and flowering shoot slenderer, all straight and declining.

The form and serratures of the leaves, the hairy and densely tomentose panicle and calyx, and the strong prickles of the barren stem, distinguish it from *plicatus*, in which the panicle is pilose, and wants the under coating of tomentum, the barren stems have slender prickles, and the sepals are scatteredly hairy on the outside, chiefly



at the base and apex, the white tomentum with which the inside is entirely lined forming only a narrow white line on the margins.

Mr. Babington, who has communicated his notes to me, quotes Arrhen. Rub. Suec. 25, Fries, Summa, 165, to our plant, and considers it identical with a plant he has from Loch Eil, Scotland.

I think, also, plants gathered at Jardine Hall, Dumfriesshire (No. 15) by Mr. Babington, and others in Cowleigh Park, near Great Malvern, Worcestershire, by the Rev. A. Bloxam, will probably be referred to this species.

Mr. Babington also mentions that he detected (1847) a variety at Llanberis, Caernarvonshire, in which the "leaves are pubescent, but not tomentose beneath, and the prickles of the panicle much fewer, smaller, and more slender."

#### 6. *R. nitidus*, W. & N.

This species, of which specimens are given in the Fasciculus, is not described in the Shropsh. Fl. Mr. Babington identifies our plant with that of his Synopsis. It does not, however, agree with the figure in Rub. Germ. t. 4, though corresponding generally with the description in that work. It is common in the hedges and thickets around Shrewsbury.

It is easily recognized by the coarsely doubly serrated leaves, more or less wavy or plaited on the margins, which in their form and serrature bear much resemblance to those of *R. rudis*  $\alpha$ . of the glandulose section. Its flowers are white, conspicuous and showy, the petals hanging loosely. The panicle is usually very large and compound, the branches distant, spreading in a very divaricate form, frequently, as Babington's Synopsis expressively remarks, "nearly at right angles to the rachis."

There is a peculiarity about the panicle which is characteristic, and deserves attention. The peduncles and pedicels divide or branch beyond or above the middle of their length, and the pedicels of the lateral flowers, in every division of the panicle, exceed in length the pedicel of the terminal flower; which causes the flowers to appear as if all arranged on the outside of the panicle, whilst the eye looks amongst the branches as into a skeleton frame-work.

Weihe and Nees, Rub. Germ. p. 20, describe the prickles of the panicle as curved, "ad instar cornu recurvis," but in our plant, although a few recurved prickles may be detected in the lower portion of the panicle, or rather on the flowering shoot where it joins on to the panicle, the generality of them are straight and declinate.

They have also a peculiarity in their arrangement worthy of notice.

They are slender, though strong and very sharp, very various in length, from very short to very long, but being longest and most crowded and numerous about the middle of the rachis, and also about the middle of the peduncles and pedicels; the base of each of the latter being nearly destitute of any prickles.

W. A. LEIGHTON.

Luciefelde, Shrewsbury,  
February 17th, 1848.

(To be continued).

*Discovery of Viola hirta in Kincardineshire.*

By ANDREW KERR, Esq.

ACCORDING to the 'British Flora' of Sir William Jackson Hooker, *Viola hirta* has only been found in the vicinity of Edinburgh, and is consequently rare in Scotland. It therefore gives me much pleasure to state that I found this plant in the month of April, 1847, on the south-east extremity of Kincardineshire, about three miles north-east from the town of Montrose.

Professor Balfour, of Edinburgh, has found it in other places besides the immediate vicinity of Edinburgh, and thinks that the plant is more abundant than was previously supposed.

As it flowers early in the season, it may have been overlooked in many places. I trust these remarks will tend to stir up the enthusiasm of botanists to look out for the early gems of Flora and record localities, as it is only by an acute observation and recording of localities that a proper geographical distribution of the British flora can be obtained.

ANDREW KERR.

55, Murray Street, Montrose,  
February 18th, 1848.

*Note on the specimens of Sedum reflexum mentioned by Mr. Watson, Phytol. iii. 46. By MRS. RUSSELL.*

HAVING just read in the present number of the 'Phytologist' (Phytol. iii. 46) Mr. Watson's notice of the Tremadoc Rock Sedum, sent by me in December to the London Botanical Society, it may perhaps be worth while to state that in the summer of 1839 I gathered and examined numerous specimens from the same locality, and felt not

the slightest doubt as to their being *S. rupestre*. On my stock being exhausted, I begged my friend Miss Holland to send me the further supply which has been communicated to the Society. I saw the same plant growing in abundance, together with *S. Forsterianum*, on the rocks at Barmouth, where the two varieties pass so insensibly into each other that it is almost impossible in some cases to draw the line between them.

ANNA RUSSELL.

Brislington, February 21, 1848.

[Mr. Watson having done me the honour to mention my name in connexion with the British species of *Sedum* (Cyb. Brit. 401), I may say that I am quite at a loss to understand how any confusion can exist between plants which appear to me so extremely different as *Sedum reflexum* and *Sedum rupestre*. It will be of little avail to point out discrepancies where I can find no point of similarity except in the colour of the flowers. Still, without noticing botanical characters, I cannot avoid calling attention to the difference in size; *S. reflexum* being four times larger than *S. rupestre*, and when the two are cultivated in company its stems stand out amongst those of *rupestre* "as oxen among sheep." The discrepancies between *S. rupestre* and *S. Forsterianum* are much more subtle; the size, habit and entire superficial appearance are similar, colour alone excepted, yet the colour is so constantly and so decidedly distinct that they are instantly separable by this single character. In cultivation the discrepancy becomes still more marked, and the different *constitutions* of the plants is observable: placed on a dry wall at Peckham, *rupestre* thrives, but *Forsterianum* dies; placed under the drip of water, *Forsterianum* thrives, but *rupestre* dies. I have never found *rupestre* except on the driest parts of exposed rocks: I have never found *Forsterianum* except in the spray of waterfalls. I was not fortunate enough to meet with it at Barmouth, where Mrs. Russell records its occurrence.—*E. N.*].

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*On the Equisetum fluviatile of the 'London Catalogue of British Plants.'* By EDWARD NEWMAN.

SINCE Mr. Watson published his remarks (Phytol. iii. 1) in defence of the omission of *Equisetum fluviatile* from the 'London Catalogue of British Plants,' that gentleman has examined the Linnean speci-

mens so named in the herbarium of the Linnean Society. At the present moment I am also sending to Mr. Watson for his inspection ordinary examples of that common plant which I have figured and described under the name of *Equisetum fluviatile*. I shall feel much obliged to Mr. Watson if he will state in an early number of the 'Phytologist,' whether he considers the Linnean specimens and those of the common London plant which I have sent him, are or are not individuals of one and the same species?

Believing that Mr. Watson will at once decide that the specimens in question belong to the same species, and will with his usual candour give the public the benefit of his decision, I will venture on a second question. Knowing that a discrepancy has not unfrequently been detected between descriptions and the specimens to which they are supposed to refer, I would ask Mr. Watson whether he detects any discrepancy between the descriptions and specimens of Linneus in the present instance that induce any doubt as to their perfect accordance?

Supposing that Mr. Watson's answers favour my view of this subject, I shall consider it worth while to point out what I believe to be an original error on the part of Fries, and a copied error on the part of Mr. Babington; but on the other hand, supposing Mr. Watson answers my questions in the negative, I shall not presume to trouble the readers of the 'Phytologist' with any further remarks upon the subject.

EDWARD NEWMAN.

Peckham; February 26, 1848.

*Botanical Extracts from James Backhouse's Visit to the Mauritius, &c.*

*Signal Mountain.*—"The soil of this narrow, basaltic ridge is good, and produces grass and bushes, with many beautiful plants, some of which have originally belonged to other countries, but have become naturalized. Here we gathered an elegant fern, *Adiantum rhizophorum*, growing in the crevices of the rocks. The facility with which plants establish themselves in such a climate and soil, renders it difficult to distinguish between those originally native and those introduced. Among the latter is *Omocarpum sennoides*, the plant producing the little, scarlet, bead-like peas with black ends, often seen

in cabinets in England: it is a trailing bush, with spikes of small, pink pea-flowers, and rather dirty-looking pods.

"Before breakfast, I walked to the ascent of the hills behind Port Louis. The trees in this part are not lofty. The tamarind (*Tamarindus indicus*), is about as large as the ash: its branches are slender, and its leaf small: its fruit was nearly over; most of the pods had become dry, and were perforated by insects. Before ripening, they are powerfully acid, but in this state they are used in curries, and are eaten with salt, which is also used in this country to moderate the acid of sour oranges, &c. The fragrant Mauritian jasmine (*Jasminum mauritianum*), with eight-cleft flowers and trifoliate leaves, and numerous other shrubs, were growing thickly in various places, and great numbers of a beautiful butterfly were feasting on the nectar of *Tiaridium indicum*; a plant resembling heliotrope, and called in this country *herbe aux papillons*, or butterfly's plant."—p. 7.

3rd Mo. 19th. — "I walked to the Cemetery, which is at a short distance from the town, and near the sea. It is approached by a long avenue of the Filao (*Casuarina lateriflora*), a leafless tree from Madagascar, attaining to a considerable height, and having drooping branches, clothed with green, slender, pendant, jointed, rush-like spray, through which the wind whistles with a mournful sound."—p. 12.

"On the borders of a shady part of the road near Pamplémousses, the beautiful orange and white varieties of *Thunbergia alata* were growing, much in the manner that ground-ivy grows in England; and by the side of a brook, there was a species of *Papyrus* or paper reed; and a remarkable palm from Madagascar, from the fibres of which beautiful cloth, resembling stuff, is manufactured."—p. 16.

"In the rocky wood at the head of the aqueduct there are several fine ferns; among them is one which closely resembles *Acrostichum fraxinifolium* of Moreton Bay. A beautiful climber of the *Convolvulus* tribe, *Quamoclit angulata*, produces such a profusion of scarlet flowers among the shrubs that border the river, as to have obtained a name signifying "fire in the bush."—p. 23.

"The traveller's tree (*Urania speciosa*), forms a striking feature in the prospect. Clumps of these trees, composed of several stems rising from the same root, are scattered over the country in all directions. The trunks, or more properly root-stocks, which are about three feet in circumference, sometimes attain to thirty feet in height; but whether of this elevation, or scarcely emerging above ground, they support grand crests of leaves, of about four feet long, and one

foot wide, but often torn into comb-like shreds. The head is of a fan-like form, and the flowers, which are not striking for their beauty, are white, and produced from large, horizontal, green sheaths. The foot-stalks of the leaves, which are somewhat shorter than the leaves themselves, yield a copious supply of fresh water, very grateful to the traveller, on having their margins cut away near to the base, or forced from contact with those immediately above them, especially those about the middle of the series. The root-stock is of a soft, cellular substance, and the fruit, which resembles a small Banana, is dry, and not edible. This remarkable vegetable production is said to grow in the most arid countries, and thus to be provided for the refreshment of man in a dry and thirsty land. Probably the water may originate in the condensation of dew, and be collected and retained by the peculiar structure of the leaf: it has a slight taste of the tree, but is not disagreeable. The Badamier (*Terminalia Badamia*), a handsome tree, with large, obovate leaves, and fruit the size of an almond in its husk, abounds in this direction. The spongy shell is so tough as to render access difficult to its small kernel, which is like a young hazelnut in flavour. A species of cinnamon (*Laurus cupularis*), forms a handsome bush in the borders of the woods. I also noticed a species of Minusops, forming a small tree, with a fruit the size of a nonpareil apple.

"The mango (*Mangifera indica*), which was introduced into this Island, had become naturalized here, along with several other fruit trees, such as the apple-fruited Guava (*Psidium pomiferum*), and the Jamrose (*Jambosa vulgaris*). The pineapple (*Bromelia Ananas*), forms impassable thickets: its fruit is sold for a few pence at the bazaars. *Gloriosa superba*, or an allied species of this beautiful plant, of the lily tribe, was growing in an elevated wood, by the side of a streamlet, on the borders of which *Andromeda salicifolia* formed a considerable tree. Numerous species of *Pandanus*, or screw-pine, ferns, climbers of the *Convolvulus* tribe, some of which were very beautiful, and many other interesting plants, were also growing here." — p. 31.

"Here we explored some portions of the forest which covers the mountain territory lying toward the centre of the Island, and some of which is nearly 2,000 feet above the level of the sea. Some of the trees exhibit the luxuriance common to a tropical climate, and have a variety of Orchideous epiphytes, ferns, *Peperomias*, &c., growing on their trunks, while others are dead or dying, from the combined injury of hurricanes and white ants." — p. 33.

## BOTANICAL SOCIETY OF EDINBURGH.

*Thursday, February 10th, 1848.* — The Rev. Dr. Fleming, President, in the chair.

Donations to the museum and library were presented. From Colonel Low a collection of plants from Penang; from Mr. D. Boyle a large collection of plants from Geelong, near Port Philip; Scottish plants from Mr. Evans; the 'Flora of Forfarshire' from Mr. W. Gardiner, Dundee; 'Botany of the Bass' from Dr. Balfour, &c. The thanks of the Society were voted to the donors.

The following communication was read: "Account of a Botanical Excursion to Braemar, Clova, and Ben Lawers, with pupils, in August, 1847," by Professor Balfour. Having made some general observations on the Botany of the alpine districts of Scotland, Dr. Balfour proceeded to give a detailed account of the localities visited and the plants gathered.

From Aberdeen the party went to Ballater, thence by Lochnagar to Castleton of Braemar, where they remained ten days, examining Ben Aven, Ben na Muich Dhui (on the top of which they slept for a night), Cairn Toul, Breriach, Glen Callater, Clova, Glen Isla, &c. Leaving Braemar, they walked by Glen Tilt to Blair Athol, and thence by the Pass of Killiecrankie to Kenmore, Ben Lawers, and Loch Lomond.

All the usual, and many very rare alpine species were gathered. *Carex leporina* was picked both on Lochnagar and on Cairn Toul; *Carex vaginata* was found on every hill in the Braemar district; *Woodsia hyperborea* was gathered in Glen Isla, Glen Phee, Clova, and on Ben Lawers; and *Luzula arcuata* was seen on all the lofty summits in the vicinity of Ben na Muich Dhui: *Mulgedium alpinum* was detected in considerable quantity on Lochnagar; also a beautiful variety of *Hieracium alpinum*, with remarkably long leaves, and involucre covered with long, white, silky hairs: it is probably the *H. villosum* of Smith, or *H. alpinum*, var. *longifolium* of 'Flora Silesia.'

In the vicinity of Ballater, and also in Glen Tilt, *Equisetum umbrosum* grew in profusion. The sides of Loch Etchan and the rocks near Loch Aven were covered with numerous alpine varieties of *Hieracia*, presenting remarkable transition forms; among them were *H. alpinum*, *Halleri*, *nigrescens*, *Lawsoni*, &c.

*Orobanchis niger* was gathered at the Pass of Killiecrankie.

Dr. Balfour then made some remarks on the progress of vegetation in the vicinity of Edinburgh, and the injury done by the late frost, in the course of which he stated that *Galanthus nivalis* was in flower in the Botanic Garden, and *Eranthis hyemalis* in Dr. Neill's garden, on the 10th inst.

The following gentlemen were elected ordinary fellows, viz., Alexander Christison, Esq., 40, Moray Place; John M'Gilchrist, Esq., 8, Keir Street; George Edward Allshorn, Esq., 63, Hanover Street; William Douglas, Esq., 47, George Square; J. H. Skinner, Esq., 18, Carlton Terrace; Dalhousie Tait, Esq., 7, Shandwick Place; Philip J. Van der Byl, 41, Clerk Street.—*W. W. E.*

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*Note on some examples of Polystichum angulare distributed by the Botanical Society of London.* By THOMAS MOORE, Esq.

IN noticing some specimens of *Polystichum angulare*, which I communicated to the Botanical Society of London, Mr. Watson has remarked (Phytol. iii. 45) that he does not know why they are distinguished by a series of numbers—1 to 7. As most of those into whose hands the specimens have fallen are probably readers of the 'Phytologist,' I may perhaps be allowed to offer a few remarks explanatory of the reason why the specimens sent to the Society were thus distinguished. They were intended to illustrate some of the varieties of form and character which this species of fern assumes, even in the same locality, and growing under circumstances precisely similar. The plants from which were gathered the fronds which have been distributed, were all growing on the same bank, within perhaps twenty yards of each other, and subjected to no appreciable difference of circumstance; and yet each plant presented more or less apparent differences, and probably no two of the many plants there growing would be found exactly identical in the shape of their pinnules, and in the development of the spinose serratures, and the basal lobe. It was thought that those who had never paid attention to the variations which occur among the individual plants of these species of ferns, might be interested in this evidence of that variation, occurring under circumstances in all respects similar; and those who had not yet learned the lesson, that in nature the groups of individuals which we call species\* are not moulded with the precision of an artist, might

\* Can any reader of the 'Phytologist' give a good definition of what should be understood by a "species?"



learn it if they chose from such examples as these. This consideration alone will show that they were chiefly intended for those who are not very far advanced in the study of Botany.

THOMAS MOORE.

Camden Town, March 3, 1848.

*Correction of a previous Error.* By THOMAS MOORE, Esq.

I REGRET to see that either myself or the compositors have committed two errors in the few remarks on *Cyperus fuscus* inserted in the 'Phytologist' (Phytol. iii. 58); which errors exactly reverse what I had intended to say. The first sentence should read thus: "I find it stated in Mr. Babington's Manual and Mr. Steele's Handbook, that *Cyperus fuscus* is a perennial;" and the latter part of the last sentence thus: "nevertheless, there seems no ground to doubt that *Cyperus fuscus* is only of annual duration." The subscribers to the 'Phytologist' will therefore be so good as to erase the words "annual" and "believe" in the places referred to, and substitute "perennial" and "doubt."

THOMAS MOORE.

Camden Town, March 3, 1848.

*Is Gentiana acaulis wild in England?*

By HEWETT C. WATSON, Esq.

MR. SIDEBOTHAM has greatly surprised me by stating that the *Gentiana acaulis* has been gathered "several times on sand-hills near Liverpool," and was found there "growing in abundance;" moreover, that he possesses specimens brought thence in a living state. (See Phytol. iii. 71). This seems to be pretty strong evidence; and yet it is evidence which I feel unable to accept as a sufficient reason for taking the *Gentiana acaulis* out of the list of "Excluded Species" in the 'London Catalogue of British Plants.' The improbability of the alleged fact appears to me sufficient to overbalance the testimony in its support, and to render it more likely that the evidence is defective through some error as to the species or its wildness. The sand-hills near Liverpool have been very frequently scoured by botanical collectors during the last quarter or half-century; and yet we do not

find *Gentiana acaulis* mentioned in the 'Flora of Liverpool,' published within these ten years. It is difficult to conceive so showy a plant remaining unseen on a frequented tract of land, which is covered only by a thin and short vegetation. And as three other species of the genus, — *campestris*, *Amarella*, *Pneumonanthe*, — have undoubtedly been collected there, it is likely enough that one of these three has been mistaken for *G. acaulis*.

The only other reported British locality, so far as I am aware of any, having been given up as erroneous by general consent, I must still consider the species to have been rightly placed in the "Excluded" list. But I shall be very happy to see it restored "to an honourable place in our Flora" if sufficient ground be shown for such a position; and equally so of any other species at present among the "Excluded." Certainly the other three species mentioned in Mr. Sidebotham's communication are introduced and imperfectly naturalized species.

HEWETT C. WATSON.

Thames Ditton, 4th March, 1848.

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*Distribution of Viola hirta in Scotland.*

By HEWETT C. WATSON, Esq.

It is curious to observe how long a time an error will continue to be repeated after having been once sent into circulation on influential authority. Mr. Andrew Kerr's communication on *Viola hirta* affords an example of this tendency to the repetition of error, even while the means of correction are ample. (See *Phytol.* iii. 76). And yet we can scarce be entitled to censure that gentleman for relying upon so high an authority as Sir William Hooker, without looking further into the accuracy of a statement too hastily made by the latter.

Mr. Kerr introduces a record of his discovery of a locality for *Viola hirta*, just within the county of Kincardine, by remarking that, "According to the 'British Flora' of Sir William Jackson Hooker, *Viola hirta* has only been found in the vicinity of Edinburgh, and is consequently rare in Scotland." Such a statement appears even in the last edition of the 'British Flora,' that of 1842. But Mr. Kerr makes it rather worse, when, in his next paragraph, he converts "vicinity" into "immediate vicinity." I proceed to show how easily the cor-

rection could have been made, without still repeating the error in 1848. And I add the dates of the works from which the extracts are taken, to show that some of the counter statements have been long before the botanical public. The *Viola hirta* is mentioned also in Don's list of Forfarshire plants, but I have not a copy at hand.

1777. *Lightfoot's Flora Scotica*.—"In the county of Dumfries very frequent, but rare in the Lothians, and the eastern side of Scotland."

1807. *Thompson's Catalogue of Berwick Plants*.—"New Mill Banks."

1824. *Woodforde's Catalogue of Edinburgh Plants*.—Localities are here compiled from other sources, in the counties of Edinburgh, Haddington and Fife.

1847. *Watson's Cybele Britannica*.—In this work it is stated that *Viola hirta* occurs in three of the six Scottish Provinces, namely, in the West Lowlands, East Lowlands, East Highlands; and that it extends northwards into Forfarshire.

1848. *Gardiner's Flora of Forfarshire*.—Three localities are indicated in the county of Forfar, under the head of *Viola hirta*.

Thus, including Mr. Kerr's added county of Kincardine, this violet has been recorded from seven of the Scottish counties.

HEWETT C. WATSON.

Thames Ditton, 4th March, 1848.

*Reply to Mr. Newman's Queries on the Equisetum fluviatile of the Linnean Herbarium.* By HEWETT C. WATSON, Esq.

MR. NEWMAN has addressed to me in the pages of the 'Phytologist' two queries respecting the *Equisetum fluviatile* of the Linnean herbarium, and has desired to have answers thereto through the same medium (see Phytol. iii. 77).

First, Mr. Newman intimates that he had sent me specimens of the plant described and figured by himself under name of *Equisetum fluviatile*, and inquires whether I consider them to belong to the same species as the specimens so named in the Linnean herbarium?—I have compared the specimens from Mr. Newman with those in the Linnean herbarium, and do not find the slightest reason to doubt their being "individuals of one and the same species."

Second, Mr. Newman inquires whether I detect any discrepancy

between the descriptions and specimens of Linneus, which induces a doubt as to their perfect accordance?—I reply, that the four specimens named *Equisetum fluviatile* in the Linnean herbarium correspond with the description of *Eq. limosum* ("caule subnudo") in the 'Species Plantarum' more exactly than they correspond with the description of *Eq. fluviatile* ("frondibus subsimplicibus") in the same work; only one of those four specimens corresponding strictly with the description of *Eq. fluviatile*, while all of them might be included under that of *Eq. limosum*, and three of them most precisely. To this extent there is discrepancy between the Linnean description and specimens of "*Equisetum fluviatile*."

I should prefer not to add another word here, having replied to the queries; but some ambiguity arises from the title of Mr. Newman's article not corresponding with the queries. The *species*, *Eq. "fluviatile"* of the Linnean herbarium *is included* in the 'London Catalogue' under name of *Eq. limosum*,—a name which it bears in the 'Species Plantarum' of Linneus, and in the works of English authors generally.

HEWETT C. WATSON.

Thames Ditton, March, 1848.

[The matter must end here for the present. I did not anticipate such an answer to the second question: I am willing to admit that either description will apply to the Linnean specimens, as indeed they should do, since they describe the same plant.—*E. N.*]

*Botanical Extracts from James Backhouse's Visit to the Mauritius and South Africa, in 1838.*

*Port Louis.*—"In the course of a walk, I met with the noble *Rivea tiliæfolia* in blossom: it is a climbing plant of the *Convolvulus* tribe, growing on the coast, among the grass and bushes. The flowers are deep pink, and upwards of four inches in diameter; the tube slightly bell-shaped, and much darker than the rest of the blossom; the five ribs of the flower are also of a deeper hue than the rest of the disc. Many other beautiful plants of the *Convolvulus* tribe are natives of this Island, especially of its eastern side."—p. 52.

*Waterfall behind the Duivelsberg.*—"Rainy weather having prevented our taking needful exercise for some days, we accompanied William Henry Harvey, and a botanist of his acquaintance, to a waterfall behind the Duivelsberg or Devil's Hill, which is attached to the eastern portion of Table Mountain. The body of descending

water is not large, nor does it fall perpendicularly, but it rushes down a narrow, bushy gorge, from a considerable height, at an angle of about 85 degrees. The ravine is crowned by cliffs, and decorated by *Todea africana* and several other ferns, abundance of brambles, some low trees, and several heaths. By the path ascending to this spot, which passes a deserted, square signal-station, *Anemone capensis*, *Antholyza æthiopica*, and several other handsome plants were in flower. The view of Table Bay and Cape Town, with the adjacent sandy flats, and the more distant mountains, is very fine from these hills. The mountains were still capped with snow. On the lower grounds many pretty plants were in flower; among them were various species of *Lachenalia*, *Moræa*, *Homeria*, *Hesperantha* and *Gladionus*. The arid parts of the country seem full of small bulbous roots; in the spring, which is now commencing, they send up their beautiful blossoms in profusion. Many of them have fragrant flowers."—p. 80.

*Table Mountain.* — "In company with W. H. Harvey I ascended Table Mountain, which is 3,582 feet high. This mountain is chiefly composed of sandstone, which rests on argillaceous rock, below which granite emerges in several places. In one place, near a deserted house called *Plaat Klip*, *Flat Rock*, there is a small vein of basalt. The lower sandstone is reddish; the upper, forming the cliffs, very white and compact. The rain which falls on this mountain, filtering through the sandstone, forms numerous rivulets, several of which descend in cascades, among the bushy rocks of the valleys of the middle region of the mountain. One of these rivulets is brought into Cape Town, under a covered conduit, for the supply of the town. — Table Mountain is ascended by a narrow, stony gorge, that passes behind a thin portion of the cliff. The top of this mountain, in common with others on the south coast, is often enveloped in fog, particularly when the wind blows from the south-east. These fogs look from below like milk-white clouds, with margins pouring over the edge of the cliffs; they are very prevalent in summer. A fog coming on, we speedily descended, having gathered a yellow *Disa*, a plant of the *Orchis* tribe, on the top, and a pink one, with some heaths, in the gorge; and the elegant blue *Agathea parvifolia*, which resembles an *Aster*, among the bushes below.

"In a walk on the ascent of Table Mountain, we noticed a fine *Leucodendron*, forming an erect bush, four feet high; the flowers almost equalled those of a *Magnolia*, the pale bractæas of the *Leucodendron* supplying the place of petals. A singular scarlet parasite,

*Cytinus sanguineus*, was growing from the roots of an *Eriocephalus*, a little, hoary, Aster-like bush."—p. 85.

*Cape Flats*.—"Many pretty flowers decked this portion of the Cape Flats. Among them were a pink *Watsonia*, resembling a corn-flag, a yellow, Iris-like *Moræa*, an orange *Gazania*, and a few pink and white *Mesembryanthemums*, somewhat of the form of marigolds."—p. 88.

*Heaths*.—"The Cape Flats are generally sandy, but beds of impure limestone occur upon them. They are thinly covered with low bushes and herbaceous plants. Various species of heath, *Erica*, grow upon them; some of these are very beautiful, but they do not cover the country as in some parts of England; most of them are thinly scattered. A yellow, fetid *Corycium*, and several fragrant species of *Satyrium*, plants of the *Orchis* tribe, were abundant: the latter were green, white and orange."—p. 89.

*Erica Massonia*.—"The new road is cut out of the sandstone, and has a toll upon it. Along its sides, and on the top of the mountain there are many beautiful shrubs and plants, among which the most striking are *Proteas*, heaths, everlastings, *Gladiolas*, *Watsonias*, *Ixias*, and plants of the *Orchis* tribe. The beautiful *Erica Massonia* was growing on a springy hillock by the side of the road. Seeing it reminded me of having heard of one of the early collectors of plants in this country going out to seek it, and meeting some oxen with a wagon, having this fine heath, with its large, waxy blossoms, of red and green, fastened to their heads to drive off the flies."—p. 91.

*Helichrysum proliferum*.—"In the course of the day I walked to the top of a hill, on which *Helichrysum proliferum*, a beautiful, crimson everlasting, was growing in profusion among low rocks of ferruginous sandstone. The plants were about the size of gooseberry bushes, covered with flowers, and as fine as I ever saw them when highly cultivated in an English greenhouse. This is not generally the case with wild shrubs: they are broken by storms and cattle, and overgrown one by another in the situations where they grow naturally, but when cultivated they are carefully protected from injury.—At dinner we partook of the boiled flower-stems of *Aponogeton distachyon*, which were very palatable; they are called in the Colony water uyentjes, *water onions*."—p. 101.

*Juncus serratus*.—"The margins of this river are choked, in many places, with a remarkable rush, *Juncus serratus*, called in the Colony "Palmit, *Palmetto*:" it has broad, keeled, and sharply serrated leaves, and a stout rootstock or trunk, which sometimes attains to five

or six feet in height, and a foot and a half in circumference."—p. 103.

*Beautiful Forests.*—"The woods in this part of the country are extensive, and interspersed among the grassy hills. Many of these forests are very beautiful: the trees are large, and much over-run with climbers. The stinkwood (*Laurus bullata*), and the yellow-wood (*Podocarpus elongata*), are the kinds chiefly cut: the former is allied to the bay, and the latter to the yew. Yellow-wood is the prevailing tree in the forests, and by the sides of rivers, on the eastern side of South Africa; it is often rendered conspicuous by a long, shaggy, green lichen, with which it is generally clothed. Parasitical plants of the Orchis tribe are common on the trunks and branches of trees in the forests; one we saw to-day had pretty, white flowers. Baboons, monkeys, bush-bucks, spotted hyænas, leopards, buffaloes and elephants are inhabitants of these woods: the two latter animals are, however, scarce, and when a leopard is discovered it is hunted unremittingly, till destroyed."—p. 131.

*Species of Euphorbia.*—"The intervening country was poor and bushy, interspersed with little salt-flays, or dried-up pools, bordered with maritime plants. In one place I noticed the *Euphorbia meloformis*, a plant in form resembling the fruit of a melon, half buried in the earth. There are also some other remarkable species of *Euphorbia* in this part of the country; one of them has scorpion-like, prostrate stems; another has thick, angular, spinous, upright stems, about three feet high. The last is called morse doorn, *nasty thorn*. The Zwartkops Rivier is a clear stream with deep pools on a gravelly bed; its banks are margined with willow and *Acacia caffra*."—p. 161.

*Remarkable Plants.*—"We also observed several remarkable plants, such as a large *Lyperia*, a bulb, bearing a blossom like the white variety of *Scilla peruviana*, a *Sparaxis* with large, pendulous, cylindric, crimson flowers, and another with small, irregular flowers, also a scarlet *Satyrium* and a *Lobelia*, blue on the under lip, blue and purple on the upper lip, and yellow on the palate. The two last were on the margin of a little stream, by the side of which we took off our saddles and dined. Further from Philipton the mountains became stony and dry. On their ridges there was a remarkable *Zamia*, with a root-stock about three feet high, and rigid, palm-like leaves of yellowish hue. Nearer Shiloh the country became drier, the grass was short and brown, and many of the hills were besprinkled with doorn-boom. Another species of *Acacia* (*Acacia elephantorrhiza*), also abounded here on dry, light soil; it had large, compoundly-pinnate

leaves, and pods about six inches long; it was not more than a foot and a half high, but had a creeping root, and spread over much ground; it had much the general aspect of a handsome fern."—p. 199.

*Pappea capensis*.—"In the evening, accompanied by John Read and two other boys, I visited a steep wood, contiguous to the river, to see the tree known in the Colony by the name of Pruim, or Caffer-plum (*Pappea capensis*). It attains to forty feet in height, and has pinnate leaves and spiked flowers. The fruit is about an inch long, and has a thick, orange-red skin, covering a thin, viscid, pleasantly acid pulp, of a flavour like the Tahitian-apple (*Spondias dulcis*), which the tree greatly resembles. There is also now ripe in the woods a small oval, red berry, called zuur bezy, sour-berry; it is of moderate and sweetish flavour when thoroughly matured, and is produced by a thick bush, having small leaves and opposite, straight, green thorns."—p. 205.

*Euphorbia grandidens*.—"At a short distance from the house there is a remarkable copse, consisting chiefly of the chandelier Euphorbia (*Euphorbia gradidens*). The leaves of this tree are confined to the young portions of the shoots, and are so small as to pass almost unnoticed. The thick, erect, angular, green stems seem to form its verdure, and its trunk, which may be thirty feet high, is, in some instances, as thick as a man's waist. At this place I first noticed a small species of coral-tree (*Erythrina*); it was about a yard high, and bore long spikes of large, crimson, pea-like flowers. It is scattered thinly over this part of Caffraria."—p. 226.

*Phœnix reclinata*.—"In some of the narrow, woody valleys about the Kap Rivier, and the adjacent parts of Albany, the Little Date (*Phœnix reclinata*), abounds; it has pectinate leaves, and attains to about ten feet in height. It is a highly ornamental little palm, and frequently bears the name of coffee-tree, because of the form and size of its seeds, which nevertheless are not available for the purposes of coffee. Children eat the thin, sweet coating of the fruit."—p. 293.

*Strelitzia*, &c.—"Our road lay, for a considerable distance, along the bottom of the deep, woody ravine of the Kowie, in which a species of Angrecum? was growing as an epiphyte upon the trees, and exhibiting its small, yellow blossoms. The beautiful *Strelitzia regina* was abundantly in flower on the north side of the ravine: it is very plentiful in this country, growing in large tufts among the bushes. Its leaves have a flag-like appearance, they are spoon-shaped, and on stout footstalks; its singular orange blossoms, three inches long, with purple, tongue-like anthers, are produced from the upper side of a



large, horizontal sheath, on the top of a stalk, and present a very remarkable appearance. The seeds of the large, white-flowered species, *Strelitzia augusta*, which grows nearer the coast, are edible."—p. 296.

*Aloe ferox*.—"Near one part of the road an Aloe, with a tall trunk, *Aloe ferox*? formed a splendid object; its flower-stems were from three to four feet high, some of them with one or two upright branches; the blossoms were tubular, and shaded with red, orange and yellow; they clothed the stems from the base, so as to form spikes the thickness of a man's arm. This plant is represented in the etching at page 293, along with *Testudinaria Elephantipes*, Hottentot's bread, found on the karroo about Uitenhage, *Phoenix reclinata*, the little date of the valleys of Albany, *Euphorbia meloformis*, the melon-formed *Euphorbia*, and *Euphorbia heptagona*, one of the morsdoorns, from the vicinity of Uitenhage; *Aloe arborescens*, the tree aloe, and *Acacia giraffe*, the kameel doorn, of Namaqua Land."—p. 326.

*Notice of the 'Tyneside Naturalists' Field Club, for the year ending February, 1847.' Vol. i. Part 1. Newcastle, 1848.*

PROVINCIAL Societies for the promotion of Natural History too frequently prove unsuccessful, after starting with large promises and prospectuses, which are shown to have been little better than bombastic delusions when the time arrives for asking about their results and realizations. At the first getting up of such an association there is frequently a good deal of zeal and activity, the temporary effervescence of which is misread into an earnest of permanent support and prosperity. Large schemes are consequently planned on paper, and a rate of expenditure commences out of present subscriptions and donations, which the true permanent revenue of the society is afterwards found quite inadequate to continue. Disappointment and debt, diminished zeal and exhausted activity, with other depressing conditions, gradually supervene; leaving the institution to drag on a precarious and unuseful existence, if its career does not become abruptly terminated in a sale of effects, or a very unwilling subscription to pay off its liabilities.

In large towns, where a numerous body of subscribers may be obtained, and a sufficient number of scientific men dwell within moderate distance from each other, a Natural History Society may exist in some degree of activity and usefulness; that is to say, a museum

may be formed and supported, and the usual routine of thinly attended meetings may take place. Some degree of good is thus effected, although more in the way of diffusing a taste for the pursuit of Natural History than in really contributing to the progressive advancement of science; and the degree of good which is effected is found to be rather costly if measured by the outlay to produce it.

Such institutions cannot be formed in the smaller towns, on account of the scanty numbers of scientific supporters or subscribers who would club together for this purpose. A substitute is attempted in associations of members by counties, instead of by single towns. A failure is the result; very much because the originators or managers of the county societies unwisely endeavour to imitate the urban associations in those which are intended for a vastly more extended and thinly peopled area. A museum is attempted; but as the museum must be in one place, while the members or might-be-members are in many places, the attempt proves unsuccessful. A library is commenced by a few donations of volumes, but makes little progress; the scattered habitats of the subscribers or members being almost equally as unfavourable to a library as to a museum. Meetings to hear papers read are also attempted, but as nobody comes to hear them, beyond two or three of the office-bearers on the spot, meetings and papers are very flat affairs.

In short, county societies require to be instituted on plans quite different from those suitable for large towns, and will fail as often as they are made imitations of the urban associations. They should rather be unions of scientific men for the purpose of combining their local investigations into one common fund or contribution to science. How valuable, for example, would be a series of published county 'Natural Histories,' including the four departments of Meteorology, Geology, Zoology and Botany, incorporating into one whole the local investigations of all the resident naturalists of the county! These would be more useful to the naturalists of the county, both while in course of preparation and also when completed, than are the abortive attempts at museums, libraries and meeting-rooms, which are in vogue at present. And their usefulness would extend far beyond the limits of their county. Nor do we think they would prove expensive to the parties by whose joint exertions they would be produced. If the necessary outlay should not be covered by the subscriptions of other residents for copies, or by sales to the public, the deficiency would be divided among several, and fall lightly on each. The 'Field Clubs' may be considered as societies of an intermediate character,

combining the advantages of personal intercourse among those of congenial tastes, with the acquisition of knowledge by local explorations; at the same time, escaping the unprofitable outlay on libraries and museums, and the always unsuccessful attempt to keep up meetings at one fixed centre, too distant from the circumference.

Our attention has been drawn to this subject by receipt of an unpretending publication, yet one by no means without merit and value, the title of which stands at the head of this article. The contents of this 'First Part' being chiefly zoological, they do not properly belong to the 'Phytologist.' But there are rules and resolutions bearing on the subject of our introductory remarks which may afford useful suggestions towards the formation and arrangement of other local associations; and under this impression we shall here reprint some of them, premising, by way of caution against misapprehension, that we omit two-thirds of the rules, &c.

"That the members of the Club shall hold five field-meetings during the year, in the most interesting localities for investigating the Natural History and antiquities of the district. That the places of meeting be selected by the Committee," &c.

"That those members to whom it may be convenient shall partake of breakfast together, at the nearest country inn, at ten o'clock, after which the researches of the day shall commence."

"That the hour for a frugal dinner be appointed by the chairman, during [after?] which any papers which he may have received from members of the Club shall be read from the chair."

"That as members must incur some trifling expense in reaching the place of their field meetings, no subscription to any general fund be required beyond the amount of five shillings yearly, to be laid out," &c.

"That at the close of each year the president be requested to favour the Club with an address, containing a written summary of its proceedings at the several field meetings, together with such observations from himself as he may deem conducive to the welfare of the Club and the promotion of its objects."

"That the Tyneside Naturalists' Field Club undertake the formation and publication of correct lists of the various natural productions of the counties of Northumberland and Durham, with such observations as their respective authors may deem necessary. Also that a succinct account of the geology of the district be prepared."

"That as mistakes may occur in the proposed lists, and as it is of importance that an authentic collection should be accessible when

any doubt may occur as to a name or species, that local collections be formed and placed, with the consent of the Natural History Society, in the Newcastle Museum."

"That the proposed publications be printed in a cheap form, and sold at a low rate."

C.

#### BOTANICAL SOCIETY OF LONDON.

*Friday, 3rd March.*—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced: 'The Flora of Forfarshire,' by Mr. William Gardiner, presented by the author. 'Transactions of the Tyneside Naturalists' Field Club, Vol. i. Part 1,' presented by Mr. John Storey. Iceland plants from Mr. C. C. Babington. Mr. Thomas Turner, of Streatham Hill, Brixton Hill, and the Rev. William Marsden Hind, of Pulverbatch, Shrewsbury, were elected members. Specimens of the plants mentioned in Mr. Watson's paper on some of the plants distributed by the Society in 1848 (See Phytol. February, 1848) were exhibited. Also a specimen of *Caltha palustris*, sent by Mr. Watson, as one of the connecting links between that species and the *C. radicans*; having the leaves just intermediate between those of the two figures in 'English Botany,' but still more acutely crenate or dentate even than those of *C. radicans* are represented to be.—*G. E. D.*

#### *Vegetation of the Organ Mountains.*

(Extracted from Gardner's 'Travels in Brazil').

"IN order to present some general idea of the splendid scenery of the country, and the leading features of this part of Brazil, I will give an account of some of these excursions. There is a path by the side of the great aqueduct, which has always been the favorite resort of naturalists who have visited Rio; and there is certainly no walk near the city so fruitful either in insects or plants. The following notes were made on the return from my first visit along the whole length of the aqueduct. After reaching the head of the Laraujeiras valley,

which is about two miles in extent, the ascent becomes rather steep. At this time it was about 9 a.m., and the rays of the sun, proceeding from a cloudless sky, were very powerful; but a short distance brought us within the cool shade of the dense forest which skirts the sides of the Corcovado, and through which our path lay. In the valley we saw some very large trees of a thorny-stemmed *Bombax*, but they were then destitute both of leaves and flowers, nearly all the trees of this tribe being deciduous. There we also passed under the shade of a very large solitary tree, which overhangs the road, and is well known by the name of the Pao Grande. It is the *Jequetibâ* of the Brazilians, and the *Couratari legalis* of Martius. Considerably further up, and on the banks of a small stream that descends from the mountain, we found several curious *Dorstenias*, and many delicate species of ferns. We also added here to our collections fine specimens of the tree-fern (*Trichopteris excelsa*) which was the first of the kind I had yet seen. The forests here exhibited all the characteristics of tropical vegetation. The rich black soil, which has been forming for centuries in the broad ravines from the decay of leaves, &c., is covered with herbaceous ferns, *Dorstenias*, *Heliconias*, *Bejonias*, and other plants which love shade and humidity; while above these rise the tall and graceful tree-ferns, and the noble palms, the large leaves of which tremble in the slightest breeze. But it is the gigantic forest trees themselves which produce the strongest impression on the mind of a stranger. How I felt the truth of the observation of Humboldt, that when a traveller newly arrived from Europe penetrates for the first time into the forests of South America, Nature presents itself to him under such an unexpected aspect, that he can scarcely distinguish which most excites his admiration, the deep silence of those solitudes, the individual beauty and contrast of forms, or that vigour and freshness of vegetable life which characterize the climate of the tropics. What first claims attention is the great size of the trees, their thickness, and the height to which they rear their unbranched stems.

"Then, in place of the few mosses and lichens which cover the trunks and boughs of the forest trees of temperate climes, here they are bearded from the roots to the very extremities of the smallest branches, with ferns, *Aroideæ*, *Tillandsias*, *Cacti*, *Orchideæ*, *Gesneriæ*, and other epiphytous plants. Besides these, many of the large trunks are encircled with the twining stems of *Bignonias*, and shrubs of similar habit, the branches of which frequently become thick, and compress the tree so much that it perishes in the too close embrace.

Those climbers, again, which merely ascend the trunk, supporting themselves by their numerous small roots, often become detached after reaching the boughs, and where many of them exist, the stem presents the aspect of a large mast supported by its stays. These rope-like twiners and creeping plants, passing from tree to tree, descending from the branches to the ground, and ascending again to other boughs, intermingle themselves in a thousand ways, and render a passage through such parts of the forest both difficult and annoying." — p. 23.

"The Corcovado mountain offers a rich field to the botanist. I frequently visited the lower portions, but only once ascended to the summit. The ascent is from the N.W. side, and although rather steep in some places, may be ridden on horseback all the way up. Some of the trees on the lower parts of it are very large. The thick underwood consists of palms, Melastomaceæ, Myrtaceæ, tree-ferns, Crotons, &c.; and beneath these are many delicate herbaceous ferns, Dorstenias, Heliconias, and, in the more open places, a few large grasses. Towards the summit the trees are of much smaller growth, and shrubs belonging to the genus *Croton* are abundant, as well as a small kind of bamboo. The summit itself is a large mass of very coarse-grained granite. In the clefts of the rocks grow a few small kinds of orchidaceous plants, and a beautiful tuberous-rooted scarlet-flowered *Gesnera*. From this point a magnificent panoramic view of the bay, the city, and the surrounding country is obtained." — p. 28.

"The whole length of the road is through one dense forest, the magnificence of which cannot be imagined by those who have never seen it, nor penetrated into its recesses. Those remnants of the virgin forest which still stand in the vicinity of the capital, although they appear grand to the eye of a newly arrived European, become insignificant when compared with the mass of giant vegetation which clothes the sides of the Organ Mountains. So far as I have been able to determine, the largest forest trees consist of various species of palms, *Laurus*, *Ficus*, *Cassia*, *Bignonia*, *Solanum*, *Myrtaceæ*, and *Melastomaceæ*. In temperate climates natural forests are mostly composed of trees which grow gregariously. In those of tropical countries it is seldom that two trees of a kind are to be seen growing together, the variety of different species is so great. Many of the trees are of immense size, and have their trunks and branches covered with myriads of those plants which are usually called parasites, but are not so in reality, consisting of *Orchideæ*, *Bromeliaceæ*, ferns, *Peperomiæ*, &c., which derive their nourishment from the moisture of the bark and the earthy matter which has been formed from the decay

of mosses, &c. Many of the trees have their trunks encircled by twiners, the stems of which are often thicker than those they surround. This is particularly the case with a kind of wild fig, called by the Brazilians, Cipo Matador. It runs up the tree to which it has attached itself, and at the distance of about every ten feet throws out from each side a thick clasper, which curves round and closely entwines the other stem. As both the trees increase in size, the pressure ultimately becomes so great that the supporting one dies from the embrace of the parasite. There is another kind of wild fig-tree with an enormous height and thickness of stem, to which the English residents give the name of buttress-tree, from several large thin plates which stand out from the bottom of the trunk. They begin to jut out from the stem at the height of ten or twelve feet from the bottom, and gradually increase in breadth till they reach the ground, where they are connected with the large roots of the tree. At the surface of the ground these plates are often five feet broad, and throughout not more than a few inches thick. The various species of *Laurus* form fine trees; they flower in the months of April and May, at which season the atmosphere is loaded with the rich perfume of their small white blossoms. When their fruit is ripe it forms the principal food of the Jacutinga (*Penelope Jacutinga*, Spix), a fine large game bird. The large *Cassia* have a striking appearance when in flower; and, as an almost equal number of large trees of *Lasiandra Fontanesia*, and others of the *Melastoma* tribe are in bloom at the same time, the forests are then almost one mass of yellow and purple from the abundance of these flowers. Rising amid these, the pink-coloured flowers of the *Chorisia speciosa*, a kind of silk cotton-tree, can be easily distinguished. It is also a large tree, with a stem covered with strong prickles, from five to eight feet in circumference, unbranched to the height of thirty or forty feet. The branches then form a nearly hemispherical top, which, when covered with its thousands of beautiful large rose-coloured blossoms, has a striking effect when contrasted with the masses of green, yellow and purple of the surrounding trees. Many of these large trunks afford support to various species of climbing and twining shrubs, belonging to the natural orders *Bignoniaceæ*, *Compositæ*, *Apocynæ* and *Leguminosæ*, the stems of which frequently assume a very remarkable appearance. Several of them are often twisted together, and dangle from the branches of the trees, like large ropes, while others are flat and compressed, like belts: of the latter description I have met with some six inches broad, and not more than an inch thick. Two of the finest climbers are the beauti-

ful large trumpet-flowered *Solandra grandiflora*, which, diffusing itself among the largest trees of the forest, gives them a magnificence not their own; and a showy species of *Fuchsia* (*F. integrifolia*, Cambess.) which is very common, attaching itself to all kinds of trees, often reaching to the height of from sixty to one hundred feet, and then falling down in the most beautiful festoons. At the foot of the mountains the underwood principally consists of shrubs belonging to the natural orders Melastomaceæ, Myrtaceæ, Compositæ, Solanaceæ and Rubiaceæ, among which are many large species of herbaceous ferns and a few palms. About the middle palms and tree-ferns abound, some of the latter reaching to a height of not less than forty feet. These trees are so very unlike every other denizen of the forest, so strange in appearance, yet so graceful, that they have always attracted my attention more than any other, not even excepting the palms. At an elevation of about 2,000 feet, a large species of bamboo (*Bambusa Tagoara*, Mart.) makes its appearance. The stems of this gigantic grass are often eighteen inches in circumference, and attain a height of from fifty to one hundred feet. They do not, however, grow perfectly upright, their tips forming a graceful curve downwards. Throughout the whole distance the path was lined on each side with the most beautiful herbaceous plants and delicate ferns."—pp. 42-46.

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Notice of 'The Cryptogamic Vasculares of Rhenish Prussia. By  
PH. WIRTGEN. Bonn, 1847.'

THIS unpretending little pamphlet is a valuable and agreeable addition to the fern-literature of Europe: the species are enumerated, with brief characters and a copious list of localities to each, occasionally interspersed with remarks, some of which we shall extract.

*Equisetum arvense*.

———— *Telmateia*=fluviatile of Smith, Hooker, &c.

———— *sylvaticum*.

———— *umbrosum*=Drummondii of Hooker, &c.

———— *palustre*.

———— *limosum*.

———— *hyemale*.

———— *ramosum*.

*Pilularia globulifera*.

*Lycopodium Selago*.



*Lycopodium annotinum.*

———— *inundatum.*

———— *clavatum.*

———— *Chamæcyparissus.*—This plant has been described by several authors under the name of *L. complanatum*; from which the present plant was distinguished by A. Braun. M. Wirtgen remarks: "The true *L. complanatum* of Linneus, which is distinguished by dichotomous branches, lanceolate exterior and smaller subulate interior leaves, and several other characters, does not grow in the Rhine province. It appears to be a plant of eastern Germany."—p. 10. We wish to refrain from expressing any opinion as to the validity of the characters by which this well-known plant is separated from the *Lycopodium complanatum* of Linneus, for which it has hitherto passed without a question.

*Grammitis Ceterach.*

*Polypodium vulgare.*—Of this species Wirtgen distinguishes four varieties, under the names of *auriculatum*, *serratum*, *crenatum*, and *oppositum*.

———— *Phegopteris.*

———— *Dryopteris.*

———— *Robertianum* of Hoffman = *calcareum* of Smith and Hooker: the restoration of the older name is highly to be commended.

*Aspidium Lonchitis.*

———— *aculeatum.*—All the kindred forms are unhesitatingly associated under this name.

*Polystichum Thelypteris.*

———— *Oreopteris.*

———— *Filix-mas.*

———— *cristatum* = the *cristatum* of Roth, &c., not of Willdenow; it is the *cristatum* of Linneus in part, and the *Callipteris* of Ehrhart.

———— *spinulosum* = *Aspidium spinulosum* of Hooker, and *Asp. dilatatum* of Smith: as the ferns comprised under this name have recently undergone investigation in this country, we shall quote M. Wirtgen's remarks at length, and add a few observations of our own.

"No. 26. *Polystichum spinulosum*, De C. Spiney Pol. *Aspidium spinulosum*, Schk. In forests throughout the whole district, in shady and sunny, in damp and dry, places. Summer. Frond 1—1½ ft. high, mostly of a rather yellow green; commonly dies away in autumn.

"Var.  $\beta$ . dilatatum, K. *Polypodium dilatatum*, Hoffm. Frond 1—2 ft. high, lively green, bipinnate and pinnatifid, almost tripinnate, deltoid-ovate in its outline. With the species, especially in shady woods.

"1st remark.—The most widely different forms of this fern are found on the hill of Montabaurer, distant three hours' journey from Coblenz, 1600 feet high, in the dukedom of Nassau, which affords an especially rich harvest in ferns, and the present species in great quantity on sunny and shady, stony and fertile, dry and boggy, ground. I usually found the variety at the end of October dead and black, while the species was still of a lively green or a yellowish green.

"2nd remark.—The species and the variety have been regarded by many authors as two distinct species; and they really appear so different, that when the variety is seen without its intermediate forms, it may well be taken for a distinct species; but on further research such a host of intermediate forms occur, that one is often at a loss to know to which of the two principal forms they should be referred. According to Schkuhr, Kaulfuss, Spenner, Wallroth, Genth, and others, *P. spinulosum* should possess a glandular, and *P. dilatatum* a smooth [indusium?]; which, on the contrary, is questioned by Lejeune and Courtois, Link, Meyer, Röper, and others, neither have I met with the glandular indusium in any of the forms. John Röper has most thoroughly investigated the history of this species in his excellent work 'Flora Mecklenburgs,' vol. i., pages 82—96, and, moreover, also unites with it *P. cristatum*, which I nevertheless was unable to confirm.

"He distinguishes—

"1. Principal or intermediate form: *Nephrodium* (*Polystichum*) *spinulosum* (true).

"2. Finely divided, or wood form: *Nephrodium* (*Polystichum*) *dilatatum*.

"3. Simplified or bog form: *N. cristatum*.

"3rd remark.—That excellent judge of German ferns, Professor A. Braun, of Freiburg, and after him Döll, in his valuable 'Rheinische Flora' (pp. 17—18), discriminate the following forms of this variable species:—

"a. *elevatum*, A. Br.—Rhizome prostrate, rather thin; stipes long, erect; axis nearly naked; frond small, barren towards the base, doubly pinnate and pinnatifid; the lower pinnae distant, nearly as long as the following; pinnules short, with approximate, serrate, sharp-pointed, acuminate segments, whose teeth are somewhat curved up-

wards and inwards. *Aspidium spinulosum*, Swartz. In damp woods in low districts.

"b. *uliginosum*, A. Br.—Stipes rather short, with few, scattered, broadly ovate, short-pointed, brown-yellow scales; frond doubly pinnate, pinnatifid; pinnæ approximate, the inferior ones a little shorter than the following; teeth of the leaflets rather short, sharp-pointed, appressed (anliegend). (At Freiburg in the bog, with *Asp. cristatum*).

"c. *dilatatum* (*Aspid. dilatatum*).—Rhizome nearly erect, thick; frond fertile over the whole under-surface, curved back, dilated; stipes rather short, rather thickly clothed with ovate-lanceolate, acute scales, which are dark brown in the middle; frond fertile, nearly tripinnate, at the base often tripinnate-pinnatifid; pinnæ long, pointed, the lowest considerably shorter; pinnules lanceolate, with smaller, more distant segments, confluent at the base, more remote, and somewhat aculeate teeth, which finally become bent back with the margin. It grows in shady woods on the mountains and plains.

"d. *muticum*, A. Br.—Stipes clothed with broader, pale scales; pinnæ largest at the base and below the middle; segments of the pinnules confluent, and broad at the base, afterwards much contracted, linear, obtuse, inciso-serrate; sori nearly marginal, at the sinus between the segments or teeth. (At Freiburg)."

It will be perfectly evident to those who take an interest in this subject that the named varieties are distinguished by Braun with great botanical tact. We are perfectly familiar with three of these forms. *Elevatum* and *uliginosum* are combined by Roth, and subsequently by Newman, under the name of *spinosa*: *elevatum* generally grows in woods, *uliginosum* in marshes. No one in this country has hitherto admitted these to be ranked as varieties: *dilatatum* is the *dilatatum*, *spinulosum* and *dumetorum* of Smith, the *multiflora* of Roth and Newman. The fourth variety, *muticum*, is entirely unknown to us; the name implying the absence of the terminal spine which distinguishes the group might lead us to suspect that the *A. rigidum*, a fern so long and obstinately confounded with this group by English authors, was the form intended, but the marginal situation of the clusters of capsules does not favour such a suggestion, and almost induces us to suppose there is an European species of the genus yet undescribed. It must, however, be observed in favour of the suggestion that *rigidum* is absent from Wirtgen's list, although decidedly a native of the district.

*Cystopteris fragilis*.—None of the forms of this protean fern are raised to specific honours.

*Asplenium Trichomanes*.

*Asplenium Filix-femina*.—The three varieties so well known are described as below, but referred without hesitation to one species.

"29. A. Filix-femina,

"*a. molle*. Athyr. *molle*, Roth. Frond small, a foot high; pinnæ longish, incised, decurrent at the axis; segments usually with one tooth. In the Condethal at Winnigen, *Wirtgen*; Wiedbachthal, *Brahts*; Friesdorf, near Bonn, *Eberwein*.

"*β. ovatum*. Athyr. *ovatum*, Roth. Frond larger; pinnæ approximate, oval, cut, decurrent at the axis; segments mostly 2-3 dentate. Condethal and Belthal, at or near Winnigen, *Wirtgen*.

"*γ. elatum*. Ath. *elatum*, Roth. Frond 2—2½ ft. high; pinnæ distant, pinnatifid, very little, or not at all decurrent; segments 2-4 dentate. A beautiful and well-marked form. In fertile soil of shady alpine woods; common."—p. 41.

*Asplenium Breynii*=*germanicum*, Weiss, &c.; *alternifolium* of most modern authors.

———— *Ruta-muraria*.

———— *Adiantum-nigrum*.—Pleasantly divided into three named varieties—*pinnatum*, *bipinnatum*, *tripinnatum*.

———— *septentrionale*.

*Scolopendrium officinarum* = *Scolopendrium vulgare* of authors.

*Pteris aquilina*.

*Blechnum spicant*.

*Struthiopteris germanica*.

*Osmunda regalis*.

*Botrychium lunaria*.

*Ophioglossum vulgatum*.

This list, which we may presume to be tolerably perfect, offers a few points for observation. Contrasting it with our own, it contains three species with which we are unacquainted, *Equisetum ramosum*, *Lycopodium Chamæcyparissus* and *Struthiopteris germanica*; the first of these may possibly prove identical with our *Equisetum variegatum*, the others are undoubtedly distinct. On the other hand, we have no less than sixteen species that are absent from M. Wirtgen's list, these are—

*Equisetum variegatum*

*Adiantum Capillus-Veneris*

*Allsoruss crispus*

*Woodsia Ilvensis*

———— *alpina*

*Lastræa rigida*

*Lastræa recurva*

*Asplenium lanceolatum*

*Asplenium marinum*

———— *viride*

*Trichomanes speciosum*

*Hymenophyllum tunbridgense*

*Hymenophyllum Wilsoni*

*Lycopodium selaginoides*

*Lycopodium alpinum*

*Isoetes lacustris*

*Equisetum variegatum* and *Lastræa rigida* being subject to a doubt, as previously expressed.

M. Wirtgen observes that the entire number of species occurring in middle and northern Germany, from the Donou to the east and north sea, amounts to fifty-seven: for the complete Rhine Flora the following species may be added:—

*Equisetum variegatum*

*Asplenium viride*

———— *trachydodon*

*Botrychium matricariæfolium*

*Adiantum Capillus-Veneris*

———— *rutæfolium*

*Allosorus crispus*

*Lycopodium alpinum*

*Polypodium alpestre*

*Selaginella spinulosa*

*Lastræa rigida*

———— *helvetica*

In the fertile province of Silesia five other species occur:—

*Cystopteris regia*

*Lycopodium complanatum*

*Woodsia hyperborea*

and

*Asplenium fissum*

*Salvinia natans*

The whole of these are absent from the British Flora, unless the Low Layton plant is referrible to the first. The said plant illustrates the extreme tenacity with which ferns cling to a station in which they have been once established. In 1845, a gentleman wrote a note for publication in these pages, (*Phytol.* ii. 291) announcing that the plant “had been dead some years;” and adding, “By making this known you may save botanists a fruitless search, and the polite proprietor of the house will be relieved from many inquiries.” We have not the honour of knowing the writer, Mr. Frederick Barham, but we presume that he knew the locality; and although he is in error in stating the plant had been dead some years (it having been gathered every year), yet it is obvious that it was not sufficiently conspicuous for him to detect it when he visited the spot in August, 1845. Two months later, that is, in October, 1845, it was green and vigorous as ever.

K.

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*Further Remarks on Plants excluded from the Second Edition of the ‘London Catalogue.’* By F. P. PASCOE, Esq.

MR. SIDEBOTHAM having directed attention to the “Excluded Species” of the ‘London Catalogue’ in the last number of the ‘Phy-

tologist,' I am induced to offer a few additional remarks on the same subject. Probably very few will agree throughout in their views as to what are or are not "truly indigenous;" fewer still, as to the degree of naturalization which should entitle a species, known or suspected to have been introduced, to take its place in our lists. As far as I have had an opportunity of forming an opinion, I think the authors of the 'London Catalogue' would have been fully justified if their list of excluded species had been much more extensive than it is: such undoubted aliens as *Lilium Martagon*, *Impatiens fulva*, and some others, ought, as it seems to me, to be very widely distributed ere they are admitted even as naturalized species in any catalogue of British plants. On the other hand, there are in the excluded list one or two species for which I would claim a less dubious position; Mr. Sidebotham has already mentioned one of these, *Oxalis stricta*, and I shall only add, that in the orchards at Lariggan and the Minney near Penzance, where it occurs in tolerable abundance, it is known to have existed for more than eighty years, and, so far from receiving any encouragement, it is regularly weeded up by the occupiers of the property. *Iris tuberosa* is another plant which, whatever may have been its origin, has been established in its present localities, near Penzance, many years, and although I only contend for its being thoroughly naturalized there, it has, as far as the nature of its stations are concerned, much more the appearance of being indigenous than *Allium Babingtonii*, which in the 'general list' takes its place, an unquestioned native.

As the 'London Catalogue' bears evident marks of the anxiety of its authors to record everything, even to the "ambiguous and erroneous," I would call their attention to *Geranium striatum*, *L.*, which they have altogether omitted;\* always found near gardens, and in small quantities, it is yet sufficiently naturalized, or apparently so, in this country to make it desirable that it should receive some notice in every work on British plants. In my earlier days it was long a sore puzzle; finding it in waste places with ordinary *weeds*, any doubts of its being otherwise than a true native never occurred to me.

Although not exactly to the point, I will not conclude without expressing my regret that the British Flora should now be regularly

\* One of the authors (Mr. Hewett C. Watson) notices this plant in his 'Cybele Britannica;' the omission of it therefore in the 'Catalogue' must have been an oversight.

hampered with the plants of the Channel Islands; why not the whole British empire, or at least Heligoland and Gibraltar?

F. P. PASCOE.

Trewhiddle, near St. Austell,  
March 17th, 1848.

[And Jamaica? I quite agree with my correspondent's view on this subject. The geographical boundaries of a Flora should be *natural*, not *political*.—E. N.]

*Note on Datura Stramonium.* By F. P. PASCOE, Esq.

IN the summer and autumn of 1846 after the removal of an old out-house, several plants of this species made their appearance on its site, as well as in an adjacent field, &c. It was perfectly new to the gardener, who had been here eighteen years. Although I took some trouble to scatter its seed, last year passed away and not a specimen was to be found. I believe that it is generally a very uncertain alien, at the best, in this country. In Cornwall it has been occasionally noticed in two or three other places.

F. P. PASCOE.

Trewhiddle, near St. Austell,  
March 17th, 1848.

*Notice of the 'London Journal of Botany,' Nos. 73 to 75, for January to March, 1848.*

No 73. *Original Papers*: "On the Structure of Cruciferous Flowers;" by A. Moquin-Tandon and P. B. Webb. "Contributions to the Botany of South America;" by John Miers, Esq. "Characters of three new Australian Mosses;" by W. Wilson, Esq. *Botanical Information*: Dr. Thomson's 'Scientific Mission to Thibet.' Sendtner's 'Expedition into Bosnia.' Fendler's 'Journey to Santa Fè.' *Nelumbium Jamaicense*. *Notices of Books*: De Candolle's 'Prodromus Systematis Naturalis Regni Vegetabilis,' 11th volume or part. Schomburgk's 'History of Barbadoes.' Harvey's 'Nereis Australis; or Algæ of the Southern Ocean.' Hooker's 'Flora Antarctica.' Darlington's 'Agricultural Botany.' Rainey's 'Experimental Inquiry into the Cause of the Ascent and Descent of the Sap.' Mac Ivor's 'Hepaticæ Britannicæ.'

No. 74. *Original Papers*: "Contributions to the Botany of South America;" by John Miers, Esq. "Prodromus Monographiæ Ficuum;" by Prof. F. A. W. Miquel. "Contributions towards a Flora of Brazil;" by G. Gardner, Esq. "Brief characters of Aulacopilum;" by W. Wilson, Esq. "Further remarks on the Pollen-collectors of Campanula;" by W. Wilson, Esq. *Botanical Information*: Dr. Thomson's 'Scientific Mission to Thibet.' *Notices of Books*: Presl's 'Botanische Bermerkungen.' 'Botanical Labels for the Herbarium.' Gottsche, Lindenberg, and Nees ab Esenbeck's 'Synopsis Hepaticarum.' De Candolle's 'Notices sur les Plantes rares cultivées dans le Jardin Botanique de Genève.' Schnizlein's 'Iconographia Familiarum Naturalium Regni Vegetabilis.' Dunal's 'Petit Bouquet Méditerranéen.'

No. 75. *Original Papers*: "Prodromus Monographiæ Ficuum;" by Prof. F. A. W. Miquel. "Contributions to the Flora of Guiana;" by George Bentham, Esq. "Notes and Observations on the Botany, Weather, &c., of the United States;" by Dr. W. A. Bromfield. *Botanical Information*: Borgeau's 'Plants of the Spanish Pyrenees.' 'Plants of Canara,' distributed by M. Hochstetter. Death of Dr. Thomas Taylor. Dr. Harvey's Appointment to the Chair of Botany in the Dublin Institution. *Notices of Books*: Gasparrini's 'Recherchi sulla Natura del Caprifico e del Fici,' &c.

As no Number of the 'London Journal of Botany' was published on the First of January, a report found ready credence that it had been discontinued for want of sufficient support, as happened at the same time with the 'Botanical Register.' We are happy to see that the report was only partially correct; Messrs. Reeve, Benham, and Reeve becoming its publishers (and, we presume, proprietors) in place of M. Baillière, in whose hands it had remained since the addition of the word "London" to its title. We should be glad to learn that its circulation increased with the change of publishers and a slight internal change of arrangement; though we fear this will not be the case to any really profitable extent. A journal which is devoted to a single department of science, and independently of its applications to the arts and professions of daily life, addresses only a very small section of the public. And if the plan of the journal be such as to render it necessary or interesting to only a sub-section of that small section, the proprietor must make up his mind to find few purchasers, and editor and contributors must be satisfied with few readers. Such we believe to be the present position of the 'London Journal of Botany.' The science of which it treats, when disconnected from the arts of



cultivation, as gardening and farming, attracts the attention of only a small portion of the community. And the staple contents of the 'London Journal,' over and above the disadvantages of disconnected publication and high price, are addressed almost exclusively to a mere fragment of the botanical portion of the community. A very restricted circulation is a natural consequence of this state of matters. Let us not be misunderstood to find fault with the 'London Journal' or its contents. The latter are good of their kind, the reviews of books excepted, and their kind itself is good and scientifically important; but they are very far from being matters of general interest to the botanical circles. And when we speak of the remunerative circulation of a periodical, the question resolves itself into one of 'how many are induced to buy?'

In the January No. of the 'Phytologist' we used the freedom to suggest a better arrangement of the 'Contents' of the 'London Journal of Botany;' and we are pleased to find our hints acted upon in that respect. It may be much less easy to give that wider interest to the contents themselves, which would ensure the wider circulation so much to be desired for the periodical; and probably the proprietors could not venture on the experiment of bringing the price and contents nearer to the usual proportion. Seven and sixpence for a hundred and fifty-four pages is a high price now-a-days in the book-market. But we believe that if the size of each half-crown Number were doubled, the increase in this respect would add extremely few to the list of purchasers, unless the additional contents were of a different kind from those which constitute the bulk of the 'London Journal.'

Judging by the three Nos. now before us, the periodical is still to consist principally of lists and descriptions of South American plants, by very competent and eminent botanists; notes and letters of botanical travellers; eulogies of books, perhaps hardly looked into beyond their title-pages and tables of contents; miscellaneous information about collectors, &c., &c. By-the-bye, we must make an exception to the "eulogies" of books, when looking into the Number for February. The first of the "Notices of Books" is one of Presl's 'Botanische Bemerkungen,' which is pretty smartly censured; the reviewer's pen, in this instance, being apparently dictated to by a different head from that which usually allows its good-nature and kind encouragement of authors to run too closely on indiscriminate commendation, which renders the laudation valueless.

There is nothing on English Botany in the three Nos. before us. Perhaps the paper of greatest general interest is that on the

structure of cruciferous flowers. Considerable difference of opinion (or, rather, explanation) has prevailed respecting the floral structure in the order of Cruciferae. Moquin-Tandon and Webb, after giving their explanations in detail, sum up their views thus: "The floral type of Cruciferae is quaternary. The calyx is composed of 4 leaflets, the corolla of 4 petals, the receptacle has 4 staminiferous glands, the androecium 4 stamens, the gynoecium 4 pistils, the fruit 4 carpidia. These verticils alternate regularly. Two stamens in the habitual state of the flower have been transformed into two pair by multiplication (*dédoublement*), and two pistils have disappeared by abortion: hence the androecium has two component parts more than it should have; the gynoecium two less. The four staminiferous glands are more or less irregular or incomplete, and are found above, below, or by the side of the filaments. Their volume has caused a change in the position of two stamens and of two calycinal leaves, which makes the androecium and the calyx appear biverticillate." This view differs materially from that given in Lindley's 'Vegetable Kingdom.' Such differences, however, are truly only differences of words, or, at least, of artificial technicalities: they are not realities in nature; although most systematic botanists evidently believe that they are making profound researches into nature, while they are simply showing how far the natural facts accord with or differ from their own technical inventions and conventional rules; such inventions and rules being, by a fiction of the imagination, regarded as discovered laws of nature.

The letters of Dr. Thomson are well deserving the attention of those botanists who interest themselves with the geographical relations of plants. The observations of a good and zealous botanist, travelling from India to the lofty lands of central Asia, must possess no little claim to attention; and all the more where they correct false information previously put forth by other parties. We have always felt convinced that Dr. Royle's writings, bearing on the geographical botany of Asia, were wanting in that degree of exactness which is necessary for scientific reliance, and yet contradiction or correction seemed out of reach. The following incidental statement in one of Dr. Thomson's letters throws some light on the matter, by showing that Dr. Royle's facts have been erroneously reported: "Royle publishes many plants from Kunawur; but the localities are incorrectly given in his book, owing, apparently, to the native collectors having always stated the name of the nearest town or halting place, instead of the mountain where the specimens were gathered. Thus Lippa, Soongnum, Rogee, and Pan-

gee, are all at elevations of from 8 to 9,000 feet ; while it was at 12 to 15,000 feet that those northern forms of plants were found, for which those much lower spots are erroneously cited."

C.

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*Note on the Death of Mr. William Jackson.*

By GEORGE LAWSON, Esq.

IT is with feelings of a painful kind that I communicate to your readers the mournful tidings of the death of Mr. William Jackson, a most devoted and zealous naturalist, and a contributor to your pages. He died here on the morning of Sabbath the 12th current, in the twenty-seventh year of his age, leaving many loving relations and a numerous circle of admiring friends, and above all a sorrowful widow and two little twin children, to lament his loss. Mr. Jackson was an enthusiastic field naturalist, and devoted attention to almost every department of Natural History. His earlier years were principally occupied in gaining an acquaintance with Botany, and in 1840 he was elected an associate member of the Botanical Society of Edinburgh. During the past few years, however, he has been much engaged in the study of Zoology, although the results of his labours are unpublished. Mr. Jackson's father was likewise a zealous and persevering naturalist, and for many years acted as Curator of the Watt Institution Museum, and since the decease of his father he has occupied that situation, and discharged the duties of the office in a way highly creditable to himself and gratifying to the directors and members of the Institution. He has likewise been chosen at two elections as Treasurer of the Dundee Naturalists' Association, and so long as he was at all able he did everything in his power to forward the interests of that Association, and to spread a taste for Natural History in local circles. Mr. Jackson loved to share with his fellow-men around him his own pure intellectual enjoyments, and was ever willing to communicate instruction to those uninitiated in the mysteries of Natural History. In private character he was a most amiable man, and justly esteemed by all who shared his acquaintance.

GEORGE LAWSON.

Dundee, March 25, 1848.

*Note on the Death of Mr. E. J. Quekett.*

WE have been reminded by Mr. Bowerbank, in his address to the Microscopical Society at the Anniversary Meeting in February last, of a serious omission in not having previously noticed the death of Mr. Quekett, a talented botanist, and a contributor to the pages of this journal. Mr. Bowerbank alludes to our deceased friend in nearly the following terms, and we beg sincerely to join in the sentiments which that gentleman has so ably expressed.

"Mr. Quekett was born at Langport, Somersetshire, in September, 1808; and in September, 1828, he commenced his attendance on medical lectures at University College, London, and pursued his studies with such assiduity that he gained a gold medal in the class of anatomy and physiology, another in that of practical anatomy, and a silver medal in that of chemistry, besides an honorary certificate in every class he attended. In 1829 he passed his examination as Licentiate of the Society of Apothecaries, and in 1830 obtained his diploma as a Member of the Royal College of Surgeons of England. He subsequently commenced the practice of his profession in Wellclose Square, and for several years held the appointment of Surgeon to the Tower Hamlets' Dispensary. In 1835 he was appointed Lecturer on Botany in the London Hospital Medical School, which office he continued to hold to the time of his death. He was a Fellow and one of the Council of the Linnean Society, and a contributor to its Transactions; besides which he published various papers in the 'London Physiological Journal,' the 'London Medical Gazette,' and the 'Pharmaceutical Journal;' and to our own Transactions, as you are aware, he was a liberal and highly valued contributor. He died at his house in Wellclose Square, on Monday, the 28th of last June, in the 39th year of his age, and will long be held in remembrance by all who had the pleasure of his acquaintance, for the unaffected amiability of his disposition and the kindness and courtesy of his manners."

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BOTANICAL SOCIETY OF EDINBURGH.

*Thursday, March 9th, 1848.*—The Rev. Dr. Fleming, President, in the chair.

A copy of the 'Transactions of the Berwickshire Naturalists' Club' was presented from Dr. George Johnstone.

The following communications were read :—

1. Short notice of the Geographical Distribution of Species in the Braemar District, by Professor Balfour. In this paper Dr. Balfour concluded his remarks on his Excursion to Braemar, &c., by noticing the geographical distribution of the plants as regards soil and altitude; and illustrated his observations by a series of specimens so arranged as to exhibit, at one view, the plants found at various elevations from the level of the sea to the summit of Ben na Muich Dhui.

The phanerogamous plants which attained the highest elevation were *Luzula arcuata* and *spicata*, *Juncus trifidus*, *Carex leporina*, *vaginata*, and *rigida*, *Silene acaulis*, *Salix herbacea*, *Empetrum nigrum*, *Festuca ovina*, var. *vivipara*, *Aira cæspitosa*, var. *vivipara* (alpine form), and *Azalea procumbens*.

In the districts visited, the greater number of rare species were associated with moist, crumbling, micaceous rocks, such as gneiss and mica-slate,—the granitic rocks presenting large tracts of dry, stony, unproductive soil. Some species seem to be confined to peculiar rocks,—thus *Lychnis alpina* has been found only on serpentine; and the rock on which *Oxytropis campestris* grows appears to be different from those in the immediate vicinity. *Luzula arcuata* seems to prefer granite.

2. List of Algæ found on the West Coast of Scotland, with remarks, by the Rev. D. Landsborough. In this communication the author enumerated the various species of Algæ found on the coast of Ayrshire, the Island of Arran, &c., and made remarks on their comparative rarity. Among some of the more interesting species noticed were *Cystoseira ericoides*, *Asperococcus Turneri*, *Gloiosiphonia capillaris*, remarkable for the fine crimson hue which it assumes when exposed to the air, *Polysiphonia parasitica* and *formosa*, *Ceramium Deslongchampsii*, *acanthonotum*, *echinatum*, *Griffithsia corallina*, *Oscillatoria thermalis*, *Petalonema alatum*, found by Professor Balfour on Goatfell, in Arran, *Batrachospermum moniliforme* and *alatum*, &c. Beautifully prepared specimens, from Mr. Landsborough's collection, were shown by Dr. Fleming.

3. Notes of Diatomaceæ found in the Stomachs of certain Mollusca, by Dr. Dickie, King's College, Aberdeen. In this paper the author enumerated fifteen Diatomaceæ found in the stomachs of different species of *Ascidia*, many of them having been found in a living state. He also mentioned several species which had been found in the

stomachs of the freshwater mussel (*Mya margaritifera*) in the Dee, about eighteen miles inland.

4. Notice of a New Species of *Spiridens*, and descriptions of two New Species of Ferns from Tahiti, by Dr. Greville. This beautiful moss, of which only one other species was hitherto known, has been named *Spiridens Balfouriana* by Dr. Greville. It was sent to the Society by Dr. Sibbald, H.M.S. *Grampus*, from Tahiti. The ferns, which have been named *Oleandra Sibbaldii*, *Grev.*, and *Grammitis blechnoides*, *Grev.*, were likewise sent from Tahiti, by Dr. Sibbald. Drawings were exhibited to the meeting.

Dr. Balfour exhibited beautiful specimens of tussac grass, in fine flower, from the Island of Lewis.

Dr. Dickie sent notice of the discovery of *Diphyscium foliosum* and *Buxbaumia aphylla*, in Aberdeenshire, by Mr. Alex. Cruikshanks—the former 40 miles inland, and 1,400 feet above the sea; the latter at an elevation of 800 feet.

Alex. Donkin, Esq., 11, Norton Place, was elected an ordinary fellow; and Mr. D. Boyle, Geelong, Australia, was admitted an associate of the Society.

The anniversary supper afterwards took place in the Café Royal—the President in the chair; Dr. Balfour, croupier.—*W. W. E.*

*"Description of a new British Mould.* By GEORGE JOHNSTON, M.D., &c."

(Extracted from the 'Proceedings of the Berwickshire Natural History Society.')

"I AM willing to believe, with my Lord Bacon, that Mould 'is something between putrescence and a plant.' It settles a much mooted point as well as any other theory has yet done. Organic substance, in a state of decay, is mould's fruitful matrix,—life from death,—the ever-yearning change from a worse to a better condition; for life, even in this its lowest state, is better certainly than sad corruption. And how beautiful are many moulds, when, with the microscope, we discover Nature's handicraft in them to the eye of sense! We can scarcely but believe that they have a sort of enjoyment in their life, and in the evolution of their symmetrical figures. One sort is now vigorous and abundant on some plants in my little 'green-house,' where it is as noxious as the green-fly or Aphid; and it is

rather singular that the species has not been yet recorded as a British production. I have the high authority of the Rev. M. J. Berkeley for this fact, who informs me that our mould is the *Botrytis umbellata*\* of De Candolle.

*“Botrytis umbellata.*—On a flat and smooth leaf, the decumbent filaments of this mould form a cobweb-like mycelium, but on leaves with an uneven surface, and on the stalks of herbs, the mycelium is so filamentous and thin as to be scarcely perceptible; while the erect filaments are so numerous as to render the surface downy or hirsute. The decumbent filaments are also slenderer than the others, but there is no difference in their structure; they are smooth hyaline membranous tubes, jointed at distant intervals, the joints alternately swollen and constricted, but not regularly so, and when moistened with water, the whole tube becomes swollen, tense, and cylindrical. The erect filaments are two lines in height, of a grey or cinereous colour, with a hoary sporuliferous head; they are sparingly and irregularly branched, and at the top four or five short divergent branchlets form a sort of imperfect umbel, collecting, as it were, the sporules into a round heap or summit. The main branches are either divergent or dichotomous; and many of the filaments are quite simple. The sporules are ovate or elliptical, often marked with a septum, sometimes transversely, and in others in a longitudinal direction; and this septum disappears when the sporules are moistened. The number of sporules is incalculable; they fall from the head, and are found adherent to every fibre of the plant; and when this is shaken, they fly abroad in a little cloud.

“My friend Mr. Bowerbank examined this mould with the microscope. When highly magnified, many of the main filaments exhibited slight protuberances, which were supposed to be incipient branches; these were sometimes opposed to each other, and sometimes they were not quite in opposition. The sporules varied considerably in size, and were ovate or elliptical. Placed in water between glasses, after a lapse of two days it was found that most of the sporules had germinated, each emitting a single filament, which was sparingly and irregularly branched, and contained some very minute granules.

“January 6th, 1847.”

\* \* Lam. et De Cand. Fl. Franç. ii. 71. Duby, Bot. Gall. ii. 921.”

*Notice of 'Opuscula omnia Botanica Thomæ Johnsoni, Pharmaceuticæ Societatis Londinensis Socii. Nuperrime edita à T. S. Ralph, e Collegio Regali Chirurgorum Angliæ, et Societate Linneana Lond. Londini: Sumptibus Guliel. Pamplin. M.DCCC.XLVII.'*

SOME six or eight pages in Pulteney's 'Sketches of the Progress of Botany,' contain the substance of all that seems to be known with any degree of certainty respecting one who, in his twofold capacity, is said by Wood to have been in his day "no less eminent in the garrison for his valour and conduct as a soldier, than famous through the kingdom for his excellency as an herbalist and physician." This was Thomas Johnson, the learned editor of Gerarde's 'Herbal,' which was so greatly improved by his editorial labours as to have elicited from Haller the well-deserved encomium—"dignum opus, et totius rei herbariæ eo ævo notæ, compendium."

Johnson was a native of Selby, in Yorkshire, and educated as an apothecary. He had a shop on Snow Hill, London, "where," says Wood, as quoted by Pulteney, "by his unwearied pains, advanced with good natural parts, he attained to be the best herbalist of his age in England."

Johnson made his first appearance as an author in 1629, when he published his 'Iter in Agrum Cantianum,' and 'Ericetum Hamstedianum.' Pulteney says that he never saw either of these catalogues, and does not appear to have been aware that they were followed, in 1632, by two much more extensive lists of plants collected in the county of Kent and on Hampstead Heath and its vicinity in the latter year; since in the only place where they are mentioned in his sketch of Johnson, he assigns the date of 1629 to the 'Iter Cantianum,' and that of 1632 to the 'Ericetum Hamstedianum.'

These tracts have for many years been extremely rare; and although modern botanists may perhaps be disposed to look upon them as possessing but little scientific value, they are, to say the least, exceedingly interesting as being the first local catalogues of British plants ever published in England; and we cannot but express our gratitude to the spirited projector and publisher of the elegant reprint before us, for enabling the British botanist to compare these the earliest records of botanical research with the present enlarged enumerations of the plants of our island.

The first tract in the volume has for its title, 'Iter Plantarum Investigationis ergo susceptum, a Decem Sociis, in Agrum Cantianum,



Anno Domini 1629, Julii 13.' And a right pleasant description of the journey is given. The ten companions, we are told, were Jonas Styles, William Broad, John Buggs, Leonard Buckner, Job Weale, Robert Larking, Thomas Wallis, two Edward Brownes (one of whom was servant to William Broad), and Johnson himself; who tells us that for some few years past it had been the truly laudable custom for certain lovers of Botany to go out of town two or three times a year for the purpose of collecting plants; and that early on the morning of the 13th of July, 1629, the above-named persons met at St. Paul's Cathedral, whence they went down to the river side, and entered two boats in order to proceed to Gravesend. Scarcely, however, had they left the shore, when

"Eripiunt subito nubes cælumq. diemq.  
*Nostrorum* ex oculis : ponto nox incubat atra.  
 Intonuere Poli, et crebris micat ignibus æther :  
 Præsentemq. *nobis* intentant omnia mortem."\*

This tempest so terrified Buckner, Buggs, Weale, and Larking, that they put in at Greenwich, there to refresh themselves after their fright. "But we," says the more heroic Johnson, "without delay proceeded onward to Gravesend, whence, after breakfast, having left a letter for our absent friends, in order to let them know where we intended to pass the night, we took the accustomed route to Rochester, and found the following plants." Here follows a list of upwards of a hundred; none of them rare.

On reaching Rochester they put up at the sign of the Bull, where they were shortly joined by the friends they had left at Greenwich, who, the thunder and rain having ceased, had again committed themselves to the mercy of the waves; but the tide failing them, they left their boat at Erith, and walked to Gravesend, where they received the epistle left by the party who had preceded them; and mounting some horses rode on to Rochester, where they all joyfully supped together after the fatigues of the day.

\* Virgil, *Æn.* i. 92 : thus Englished by Dryden :

————— "Sable night involves the skies;  
 And heaven itself is ravished from their eyes.  
 Loud peals of thunder from the poles ensue,  
 Then flashing fires the transient light renew :  
 The face of things a frightful image bears,  
 And present death in various forms appears."

The next morning the party walked to Chatham, where they went on board the Prince Royal man-of-war, which surpassed the vessels by which she was surrounded,

“Quantum lenta solent inter viburna cupressi.”

The inspection of this vessel seems to have afforded the party the greatest pleasure, since Johnson tells us that everything he saw was so far beyond his expectations, that he would not dare to attempt a description, nor, if he dared, would he be able to give it.

In the Isle of Sheppey they met with an adventure. The party slept at Queenborough; and as they were preparing to start in the morning, they were waited upon by a person who informed them that the Prefect of the place (called the Mayor) wished to have a word with three or four of their number. To this, says Johnson, we assented, and proceeded to his house, where, salutations having been exchanged, the Mayor made a speech to the effect, that ancient kings of England having been pleased to confer upon that town certain great privileges, in order that the little island might be the better preserved from damage; it is therefore my duty, continued his worship, being responsible for the public safety of this place, to demand the purpose of your coming to this Island. Not that there is anything in your appearance calculated to excite suspicion in the smallest degree, but it is against the ancient laws of this place to allow so many men to remain here without knowing what they are up to. Explain therefore, in a friendly way, the purport of your visit. Then John Buggs, to whom the office was delegated, briefly informed his worship, although he said he did not think he had anything to tell worth the notice of so great a man, that he and his friends were students of Medicine and the *Materia Medica*; that they had come for the purpose of seeing what rare plants were growing in the Island; and that with no other view had they undertaken a pedestrian journey to such a distance from London. But Mr. Styles, with admirable tact, after confirming what had before been stated, added that independently of that cause for their visit, the pleasure of seeing so eminent a man as the Mayor would of itself have been a sufficient inducement for their coming, especially as he was known to be so well versed in nautical affairs, he being a captain in the Royal Navy. And so the Prefect, being fully satisfied by these and similar explanations, after a short conversation with the party upon medical and naval matters, treated his visitors to some of his best ale, in which he courteously drank to their health, and they, duly impressed with a sense of his condescen-

sion, after thanking him for his hospitality, left the house and proceeded to the Castle, where our loyal author was thrown into an ecstasy by the sight of the royal insignia of the never-sufficiently-to-be-praised Queen Elizabeth; and quotes some Latin verses of a highly laudatory character thereto appended. On the topmost height of the castle was gathered *Asplenium Ruta-muraria*; but this does not seem to have afforded so much pleasure as the sight of the royal arms below.

A doleful account is given of the sufferings of the party in *Greane Isle*, where, although their path lay alongside the river, they, *Tantalus*-like, experienced all the horrors of thirst, the water, though abundant, being *salt*; by the pangs of hunger they were equally afflicted in the midst of that inhospitable desert, where no house was visible, and where none of the usual indications of the propinquity of human habitations, such as the curling smoke delighting the eyes of the way-worn traveller, and the barking of dogs saluting his ears—none of these welcome sights and sounds were there to raise their drooping spirits. Having at length escaped from their difficulties, they arrived at the village of Stoke, completely tired out. There, having despatched their dinner, and all the party being knocked up except Johnson and Styles, they were by the latter committed to the care of a wagoner, who gave them a ride in his wagon towards Rochester, and the two more enduring friends walked on from Stoke by Cowling towards Cliffe, collecting many plants by the way.

From Cliffe the two companions, having been rejoined at Gravesend by Wallis, Buckner, and Weale, proceeded to Erith, where, taking boat, they on their passage homeward saw three East Indians returning from a voyage; one of these they boarded, and Buckner received a cocoa-nut and other things as presents. On reaching London they found their missing companions, and made arrangements for visiting Hampstead Heath on the 1st of August following.

A good number of plants was collected in the trip, but none which would now be looked upon as rare.

On the morning of the 1st of August, seven of the ten who had agreed to go to Hampstead Heath (Buggs, Weale, and Wallis being absent) met at the appointed place; the places of the missing three being supplied by John Sotheran, John Marriott, and Thomas Crosse. Not deterred by the threatening aspect of the skies, but considering that it would be disgraceful in those who had borne greater evils to yield to lighter ones, they left the city and held their way to Kentish Town; which they had scarcely left ere a heavy shower drove them

to seek shelter at Highgate. The rain had no sooner ceased, than they entered the wood, and found several plants (the names of which are here recorded) in addition to those observed in a previous journey here referred to, but which has perhaps never been published. This portion of the author's labours occupies but two pages, and concludes with a short paragraph relative to the results of the year's explorations, and the promise that these results are but the prelude to what is to be done in years to come—"quibus propitius sit Deus. *Amen.*"

The second tract here reprinted bears the following title: '*Descriptio Itineris Plantarum Investigationis ergo susceptum, in Agrum Cantianum Anno Dom. 1632; et Enumeratio Plantarum in Ericeto Hampstediano locisq. vicinis Crescentium.*' It is of a much more ambitious character than the preceding, since it occupies 48 pages, is preceded by a Dedication to the Master, Wardens, and Assistants of the Apothecaries' Company, and an Address to the friendly reader; besides being illustrated by five figures of plants. This journey was commenced on the 1st of August, 1632, by the wish and under the auspices of Thomas Hickes, the Warden of the Company, who accompanied the party in their peregrinations. They sailed down the river to Margate, and in the Isle of Thanet found upwards of sixty fresh plants. On the way to Nash upwards of sixty others were observed; and more than seventy new ones between that place and Sandwich, where, in the shop of Charles Anatus, a medical man, they were shown the remains of a serpent, fifteen feet long, and thicker than the arm. This wonderful animal was supposed to be a veritable *sea-serpent*; it having been captured by two men among the sand-hills on the sea-shore, being first despatched by small shot fired into its head. It had evidently sought this spot for the sake of preying upon the rabbits, which there exist in great numbers, for two of these animals were taken from its stomach. The men, having killed the beast, took it to our friend Charles Anatus, who purchased it of them, and removing the flesh, stuffed the skin with hay, and preserved it as a thing worthy of all consideration. So far Thomas Johnson upon an English sea-serpent.

About a hundred plants were collected between Sandwich and Canterbury, which city they reached towards sun-set, and immediately went to the Cathedral, wherewith the party were much gratified. The next day being Sunday, was passed in quiet and divine worship; but the following morning, girding themselves to their work, they proceeded to Faversham. From this place the party journeyed on

towards Gravesend through Sittingbourne and Rochester: and from Gravesend they safely returned to London.

In the following year Johnson published his edition of Gerarde: we may here quote the following passage from Pulteney, as showing Johnson's part in this great work, in which his botanical excursions were no doubt of great assistance.

"After what has been said of the plan, as it stands in Gerarde, it remains only to show briefly what Johnson has done. In about twelve pages, he has prefixed a concise, candid, and judicious account of the most material writers on the subject, from the earliest ages to the time in which he wrote; concluding with a particular account of his own work, from its origin in Dr. Priest's translation. After this follows a table, pointing out, with great precision, all his additions; by which we learn, that he enriched the work with more than eight hundred plants not in Gerarde, and upwards of seven hundred figures, besides innumerable corrections. By procuring the same cuts that Gerarde used (to which collection a considerable accession had been made), and by having some new blocks cut, his work contained a greater number of figures than any Herbal extant; the whole amounting to 2717. Another edition appeared in 1686."

In 1634 Johnson published his '*Mercurius Botanicus. Sive Plantarum gratiâ suscepti Itineris, Anno M.DC.XXXIV. Descriptio. Cum Earum Nominibus Latinis et Anglicis, &c.*' This was an 8vo of 48 pages, which is here reprinted line for line and page for page, as is likewise the case with the other tracts in the volume.

"It is dedicated," says Pulteney, "to Sir Theodore Mayerne, and others of the College, in his own, and the names of his associates in the excursion, who were all of the Company of the Apothecaries. It was the result of a journey, through Oxford, to Bath and Bristol, and back by Southampton, the Isle of Wight, and Guildford, made with the professed design to investigate rare plants. He has described, in not inelegant Latin, their route, which took up only twelve days, and the agreeable reception they met with among their acquaintance.\* We meet with a list of exotics, amounting to 117, cultivated by Mr. George Gibbs, a surgeon at Bath, who had made a voyage to Virginia, from whence he brought many new plants; which, as it exhibits the advanced state of gardening in this country at that time, is now a matter of curiosity.

\* This observation is equally applicable to the Kentish journeys, in which the party were treated with the greatest hospitality.

"The plants of spontaneous growth enumerated in this short tour, varieties being excluded, exceed six hundred, which, at a time when the Cryptogamia were scarcely noticed, and in the season when neither the very early nor late plants could be seen, is no inconsiderable number. In this catalogue are several not discovered in England before. With this tour Johnson gave his small tract, 'De Thermis Bathonicis, sive earum Descriptio, Vires, Utendi Tempus, Modus, &c.' There are three small plans of the baths, and one of the city, which seem to be copied from Speed's map. These are now pleasing curiosities to the lovers of antiquity, and to all who contemplate the astonishing increase of the city since that time."\*

In 1641 appeared 'Mercurii Botanici pars altera, sive Plantarum gratiâ suscepti Itineris in Cambriam sive Walliam Descriptio, &c.' This is dedicated to Thomas Glynn, of Glynn Lhivona, who hospitably entertained Johnson and his friends at his house. The tract gives a pleasant account of the journey through Wales, with a catalogue of the plants met with there and in other places by Johnson and other botanists. In the introductory observations are answered the objections of those who do not recognise the utility of botanical studies; and a hope is expressed that the tract will not be read except by such as are disposed to be pleased with it; "namque benevolis non malevolis hæc scripta sunt."

The party, consisting of Johnson, Paul Sone, and Edward Morgan, left London on the 22nd of July, 1639, travelling by Aylesbury, Stratford-on-Avon, Bilsley, Henley-in-Arden, Birmingham (*Bremicham*), Wolverhampton, Newport, Chester, and Stockport, where they met with sorry treatment, leaving the following lines written upon the wall of the bed-room, as a farewell token :—

"Si mores cupias venustiores,  
Si lectum placidum, dapes salubres,  
Si sumptum modicum, hospitem facetum,  
Ancillam nitidam, impigrum ministrum,  
Huc diverte, Viator, dolebis.  
O Domina dignas, forma et fœtore ministras!  
Stock-portæ, si cui sordida grata, cubet."

Entering Wales by Flint, the travellers passed through Bangor and Caernarvon to Snowdon, being, according to Pulteney, if not the first, at least "among the earliest botanists who visited Wales and Snow-

\* Fac similes are given in the reprint.

don, with the sole intention of discovering the rarities of that country in the vegetable kingdom."

This was probably the last of Johnson's publications, for his death occurred in 1644, and in the few remaining years of his life he could have had but little leisure for botanical pursuits, as he seems then to have laid by the pen for the sword. The following paragraphs, relating to the close of his career, we quote from Pulteney.

"In the civil wars, his zeal for the royal cause led him into the army, in which he greatly distinguished himself; and the University of Oxford, in consideration of his merit and learning, added to that of his loyalty, conferred upon him the degree of Doctor of Physic, May 9, 1643.

"In the army, he had the rank of lieutenant-colonel to Sir Marmaduke Rawdon, governor of Basinghouse. Mr. Granger informs us, that 'he set fire to the Grange, near that fortress, which consisted of twenty houses, and killed and burnt about three hundred of Sir William Waller's men, wounded five hundred more, and took arms, ammunition, and provisions from the enemy.' Wood adds, 'that going with a party on the 14th of September, 1644, to succour certain of the forces belonging to that house, which went to the town of Basing to fetch provisions thence, but beaten back by the enemy, headed by that notorious rebel, Colonel Richard Norton, he received a shot in the shoulder, of which he died in a fortnight after. At which time his worth did justly challenge funeral tears; being then no less eminent in the garison for his valour and conduct as a soldier, than famous throughout the kingdom for his excellency as a herbalist and physician.'"

Johnson's age at the time of his death is not precisely known: Pulteney supposes him to have hardly reached the meridian of life, from his not being mentioned in Lobel's '*Adversaria*,' printed in 1605. However this may have been, his industry and learning are sufficiently testified in the Herbal and his other works which have reached us; and we cannot but feel grateful to the editor and proprietor of the work before us for having contributed to the rescuing from oblivion the memory of a man to whom British Botany has been so much indebted.

It is truly gratifying to see in these time-honoured Itineraries, that there is abundant truth as well as wisdom in the profound aphorism which declares that "human nature remains the same in all ages:" and in one important particular at least we presently hope to show that this is the case. The remark has frequently been made, and

sometimes by way of reproach, too, that naturalists, and out-o'-door naturalists more especially, are somewhat prone to attach undue importance to *creature comforts*. Now we hold that a *proper* attention to the wants and wishes of the outer man, is in no wise derogatory to the character of a naturalist, or incompatible with the pursuit of knowledge, whether in the closet or the field. For there is another old saw worthy to be placed alongside the one quoted above, which says that "the horse which goes *well* in one path, will go at least *tolerably* in all:" whence we would infer that he who most admires the beauty of natural objects *in puris naturalibus*—that is to say, *uncooked*, can scarcely fail to appreciate them equally after they have been subjected to the mysteries of the culinary art. This, to some, may appear to partake of the figure of speech termed a *non sequitur*, but it is true, notwithstanding; as will readily be granted by all who, like Johnson and his unlucky companions in *Greane Isle*, have felt the pangs of hunger and thirst beneath the summer's sun. To them, how delicious the association of ideas awakened perhaps by the unexpected apparition of a plant used *in re culinaria*! Of Lady Scott it is recorded, that whilst walking with her husband

"Abroad in the meadows to see the young lambs,"

and Sir Walter happening to make the remark that these little animals are very interesting creatures, her ladyship replied "Yes; *with mint sauce*!" Now, as the converse to this, let us suppose a botanist placed in a similarly interesting position to that of our old friends in *Greane Isle*; and let us also suppose him to come suddenly upon a patch of some species of *Mentha*; is it too much to believe that his weary and fainting spirit would be refreshed by visions of *roast lamb* with mint-sauce? In like manner would *Thymus* suggest ideas of roast veal well stuffed; and a field of barley conjure up mental pictures of the foaming tankard of ale, or the wee drap o' mountain dew, bright and sparkling as the gems which deck the ebon brow of night. So that if he agree with those metaphysicians who hold that there is nothing *material* in the objects which surround us, but that like Macbeth's air-drawn dagger they are all nothing more than mentally daguerreotyped ideas, the naturalist in the pursuit of knowledge under difficulties has but to follow the advice of Erasmus to Sir Thomas More, when the learned Dutchman forgot to return the horse he had borrowed—he has but to *believe* that all the good things he thinks of are before him, and then he may *fa' tu an' ale* to his stomach's content, finishing off with the produce of the choicest vin-



tages ever matured by the fervid suns of the glowing South. But, be it remembered, that the botanist thus depending on his wits for a dinner, might possibly find himself *in a fix*, unless they were somewhat sharper than those of the man of whom Wordsworth sings in the well-known lines,

“A primrose by the river’s brim,  
A yellow primrose is to him,  
And it is *nothing more* !”

This being the case, we are by no means disposed to quarrel with the records of gustatory localities and proceedings frequently introduced into the accounts of botanical excursions; particularly those of our good friends in the North. We especially honour old Johnson for not thinking it beneath the dignity of a man of his standing to inform us that he and his friends dined at Rochester, merrily supped together at Gravesend, drank ale with the learned Mayor of Queenborough, and had a sumptuous repast provided by Mr. Wallis, with similar instances of hospitality experienced in their numerous peregrinations through the length and breadth of the land: these records amply testify both that the spirit of hospitality even now exercised by all persons who have the slightest pretension to a love for natural history, had gained deep root in our island upwards of two hundred years ago; and that no modern naturalist worthy the name has in any wise degenerated from that pristine love of good cheer and good fellowship which distinguished the ancient fathers of the science: *teste*, among other proofs which will present themselves to the mind of our readers, the merry doings at all the meetings of the British Association wherever they may be held. In the nature of things it must indeed be so. If, as Coleridge has well said,—

“He prayeth well who loveth well  
Both man and bird and beast,”

so, altering a word, we may further say with him,

“He *liveth* best who loveth best  
All things both great and small ;”

and, loving them, useth them without abuse, and according to his ability dispenseth the blessings wherewith he hath been favoured. To the honour of naturalists generally we are bound to record the disinterested hospitality over and over again experienced at their hands. Indeed, when we call to mind the past pleasures of our former botanizing excursions, when, with appetite sharpened by exer-

cise we have gladly sat down to the bread and cheese of the unlooked-for road-side hostelry—astonished the good wife of the half public, half farm-house by our exploits in the way of putting the delicious bacon and eggs out of sight—or, more delightful still, remembering the congregating of kindred spirits around the social board at night, each recounting the events and displaying the acquisitions of the day—we can scarcely avoid exclaiming with Horace (who, by the way, we are almost inclined to claim as a brother naturalist),—

“ O rus ! quando ego te adspiciam ? quandoque licebit,  
Nunc veterum libris, nunc somno et inertibus horis,  
Ducere sollicitæ jucunda obliviam vitæ ?  
O ! quando faba Pythagoræ cognata, simulque  
Uncta satis pingui ponentur oluscula lardo ?  
*O noctes cænæque Delum !* quibus ipse meique,  
Ante larem proprium vescor, vernasque procaces  
Pasco libatis dapibus. Prout cuique libido est,  
Siccat inæquales calices cōniva, solutus  
Legibus insanis ; seu quis capit acria fortis  
Pocula, seu modicis uvescit lætius. Ergo  
Sermo oritur, non de villis domibusve alienis,  
Nec, male necne *Fabbri* saltet ; sed quod magis ad nos  
Pertinet, et nescire malum est, agitamus.”

Just such a party as Horace describes can we imagine these old herbalists to have been : and truly delightful companions without doubt were they. Contented with the highways of life as of Botany, they thankfully plucked the fresh flow'rets as they presented themselves to their hand ; and little disposed were they to explore the byways in search of the more occult treasures of the woods and groves. There was not, it is true, in their days, that necessity for independent and original research which now exists ; theirs was the apostolic age of natural history, when naturalists yet had all things in common ; when no one, more enterprising than his compeers, feared the receipt of a legal epistle, filled with threats of pains and penalties incurred by diffusing information collected from less accessible and more costly sources *without* permission, and plainly intimating that permission would not be granted even if *asked* ; in short, when science was loved for its *own* sake, rather than for the honours and emoluments it might bring to the professor. To the unsophisticated naturalists of those bygone days we must now say adieu ;—peace to their ashes !

L.

[Although extremely reluctant to comment on papers obligingly supplied at my own solicitation to this Journal, I think it best to state explicitly that I do not fully participate in the preceding observations on the subject of eating and drinking: and therefore I could wish my readers not to regard those observations as my own. Let it not be understood that I am at all cynical on the subject of good living, but I have always held that these matters are not worthy of record, and it is the *record* of the feeding that calls forth my correspondent's remarks: although I might perhaps enjoy the revelry at the meetings of the British Association, I do not enjoy the perusal of the reports thereof. The same remark applies to our Natural-History Clubs: it is needful for them to feed; it is perhaps excusable that little harmless follies are committed at or after feeding-time, but I hold it is very bad taste in all instances to print and circulate the particulars. The veil of oblivion should be dropped over the scenes as soon as they have passed. That the worthy Johnson should record his having swilled ale with the learned prefect of Queenborough is *per se* to be regretted, but let us not forget that the record is accompanied by a touch of exquisite humour, so exquisite, indeed, that we forget the ale altogether, or consider it as a mere accompaniment of the tale: in this respect Dr. Johnson differs diametrically from our modern historians of the victualling proceedings, who record an intense anxiety about the meats and the drinks, wholly unredeemed by a word or thought that could move the risible muscles to a smile, or give birth to an idea either beneficial to the reader or the science under whose name the Club may happen to be congregated: in London we have Linnean Clubs, Entomological Clubs, Botanical Clubs, Red Lion Clubs, &c., and right merry meetings I believe they are, but we do not report their eatings and drinkings, unless some wag lets out these doings from a propensity for mischievous fun. I would contend that all details which tend to exhibit a mind as taking an absorbing interest in the anticipation or consumption of food and drink, necessarily detract from the respect and admiration with which we were wont to regard that mind. It is a good old maxim, "Eat, drink, and be thankful;" and I presume the thankfulness is, in the present day, supposed to find expression in the printing and hotpressing of the particulars: our scientific *bons vivans* must pardon me if I think otherwise.—*Edward Newman*].

## THE DUNDEE NATURALISTS' ASSOCIATION.

*Monday, January 3, 1848.*—Mr. G. Lawson, President, in the chair.

British plants were announced from Miss Kirby and Messrs. Simpson, Kerr, Ogilvie and Lawson.

The President exhibited specimens of the *Udora canadensis* (?), communicated to him by Miss Kirby, of Leicester, the discoverer of the plant in this country. Specimens were likewise exhibited of the *Koniga maritima*, a plant new to Forfarshire, lately found by Mr. Andrew Kerr, near Montrose.

An interesting paper from Mr. Gorrie was read on the common creeper (*Certhia familiaris*), being a detail of the habits of that curious bird, with an anecdotal illustration.

The office-bearers were re-elected as follows: Mr. George Lawson, President; Mr. William Ogilvie, Secretary; Mr. William Jackson, Treasurer. Mr. Thomas Simpson, Bedale, was elected Local Secretary for Yorkshire.

Mr. Joseph Whittaker, Breadsall, was elected a fellow.

*Monday, February 7, 1848.*—The President in the chair.

British plants were announced from Mr. Whittaker and Mr. Ogilvie.

Mr. David Jackson read an interesting paper on the pied wagtail, in which he detailed the habits of that bird in a full manner. His remarks were illustrated by several drawings.

Mr. Ogilvie read a paper on the gall-forming insects. After the reading of this paper a conversation ensued on the subject of it, during which several of the members stated observations they had made on some of these curious insects.

The President made some remarks on the character of Linnæus as a naturalist, and intimated his intention of bringing before the Association at an early meeting a sketch of this illustrious man, the opinions contained in which he would be glad to hear discussed by the members.

Mr. George Simpson laid some geological specimens on the table for examination of the meeting.

Mr. John Ansell and Mr. Robert Sim, jun., were elected fellows. Mr. Alexander Croall and Mr. Andrew Kerr were elected corresponding members.

*Monday, March 6, 1848.*—The President in the chair.

A paper was read from Mr. Andrew Kerr, of Montrose, on the discovery of *Viola hirta* in Kincardineshire, and of *Daltonia heteromalla* in Forfarshire, and specimens of both plants were exhibited to the

meeting. The stations for the *Daltonia* are stated in the 'Flora of Forfarshire,' p. 255, and that for the *Viola* is recorded in the March number of the 'Phytologist' (Phytol. iii. 76). Mr. Ogilvie read a short paper on sponges. A donation of British plants was announced from Mr. Thomas Simpson. Mr. John Ansell was elected local Secretary for east Kent.

*Monday, April 3, 1848.*—The President in the chair.

On the motion of the President, seconded by the Secretary, the meeting adopted a resolution expressive of the high esteem in which the deceased Mr. William Jackson, late Treasurer of the Association, was held by the members, and of his valuable services in forwarding the objects of the Association. Mr. Lawson presented specimens of the two following Fungi, found by him during the past month, and both of which were new to Forfarshire, viz.:—

*Dactylium tenellum*, Schrad.—Found in a vasculum growing upon Musci and Hepaticæ that had lain some weeks after being gathered before being dried. The Musci and Hepaticæ were collected in Fifeshire, but were in Dundee when the fungus grew upon them.

*Hysterium Pinastri*, Fries.—On withered pine leaves in Baldovan Wood, near Dundee, seemingly in great abundance, although not hitherto observed.

A paper from Mr. Gorrie, entitled, "Remarks on the Lapwing," was read. This paper contained a very interesting and full detail of the habits of the bird, together with some no less interesting observations on the influences of cultivation, &c., on the zoology of a country.

A paper from Mr. Anderson, of Brechin, was read, being notes on localities for rare plants not noticed in the 'Flora of Forfarshire.'

The following is a condensation of Mr. Anderson's notes:—

*Meum athamanticum*.—Road-side between Balintore and Easter Coul, parish of Lintrathen; abundantly.

*Linnæa borealis*.—Kinnordy Wood, where it was first found by Mr. Banbury.

*Hieracium aurantiacum*.—Old wood eastward of Kinnordy Gardens. Near Percy House, 1846. Doubtful if really indigenous at either station.

*Pyrola media*.—Kinnordy Woods; most abundantly, 1846.

*Polygonum viviparum*.—By the side of a rill near Percy House; abundantly, 1846.

*Paris quadrifolia*.—Den of Airlie, on east bank of the Islay, about a quarter of a mile below the castle, where it was growing abundantly amongst birch and alder trees, in July, 1846, but out of flower.

*Galanthus nivalis*.—Among the trees N.E. of the Castle of Inverquharity, abundantly, but not indigenous.

*Trientalis europæa*.—Very abundant in Kinnordy Woods.

*Fegatella conica*.—Falls of Drumly-airy, on the Noran. April, 1847. Abundant.

*Jungermannia excisa*.—Moist banks, Brechin Castle, in fruit, 1847.

*Bæomyces rufus*.—Hare Craigs, near Broughty Ferry, October, 1847.

Mr. Ogilvie stated the following stations that do not appear in the Flora.

*Sphagnum compactum*.—Peat bog, near Padanaram.

*Hypnum alopecurum*.—Den of Mains.

Mr. Lawson added the following:—

*Bryum ligulatum*.—Abundantly in fruit in Den of Fowlis, 1845.

*Hypnum ruscifolium*.—Growing on the stones, and likewise on the iron bars of a grating at a well at Ninewells, near Dundee.

*Lepraria flava*.—Den of Fowlis, on trees. 1845.

*Cyphella muscigena*.—On mosses, Den of Mains.

*Cylindrospora deformans*.—On *Vaccinium Vitis-idæa*, Sidlaw Hills, on acclivity near the peat bog, and on its west side.

"*Galium verrucosum* [*G. saccharatum*, *All.*].—Near Forfar, Scotland, Mr. G. Don."—*Smith's English Flora*, i. 205.

"*Juncus obtusiflorus*.—Near Forfar, rare; Mr. David Don."—*Smith's English Flora*, ii. 176.

"*Agaricus cantharellus* [*Cantharellus cibarius*, *Fr.*].—We first observed it in the garden at Bellmount, in the county of Angus."—*Lightfoot's Flora Scotica*, ii. 1008 (second edition).

"*Hydnum repandum*.—We observed it at Bellmount, the seat of the Honourable Mr. Stewart Mackenzie, in the county of Angus."—*Lightfoot's Flora Scotica*, ii. 1041.

GEORGE LAWSON, P.

212, Perth Road, Dundee,  
8th April, 1848.

### *Variety of the Garden Primula.* By JOHN COLLINS, Esq.

Two or three years ago I raised from seed a curious variety of the coloured *Primula* (vulgaris). The calyx has the segments terminating in diminutive leaves, similar in form to the radical leaves. This

would seem to favour the notion expressed by some vegetable physiologists, that the calyx is merely a whorl of leaves, which under ordinary circumstances are but partially developed.

JOHN COLLINS.

Kirkburton, Huddersfield,  
April 10th, 1848.

*List of the Rarer Flowering Plants observed during a residence in Fifeshire in 1846-7.* By GEORGE LAWSON, Esq.

I HAVE now the pleasure of sending you for insertion in the 'Phytologist' the following contribution to the Flora of Fifeshire, being a list of the rarer flowering plants observed by me during a short residence in the county in the years 1846-7. It may be proper to remark, that I have been careful to mention no plant but such as I have myself observed; and those that there is reason to suppose may be doubtfully native are distinguished by an asterisk.

*Ranunculus sceleratus*, L.—In a ditch at the road-side opposite to Seggie Distillery.

\**Helleborus viridis*, L.—Sparingly on the old garden wall at Clatto; plentiful in Gowel's Den. In neither of these stations can the plant be supposed to be indigenous; and in the latter it has probably been planted at a remote period as cover for game, although now seemingly quite naturalized.

\**Aquilegia vulgaris*, L.—Craigfoodie, abundant, and quite naturalized. It is probably an escape from the garden.

\**Berberis vulgaris*, L.—In hedges between Colinsburgh and Anstruther.

*Nymphæa alba*, L.—Lindores Loch.

\**Papaver somniferum*, L.—On Coulford Bridge embankment, between Dairsie muir and Balmullo. It likewise occasionally occurs by waysides, and as a weed in gardens and shrubberies; but it has, of course, no claims to be considered indigenous to the county; nor may it be permanently naturalized.

*Cakile maritima*, Willd.—Sandy shores of the east coast.

*Cochlearia officinalis*, L.—Abundant on the rocky coast about St. Andrews, and likewise occasionally plentiful on the banks of streams, &c., although I have not observed it far inland.

*Cheiranthus cheiri*, L.—On the rocks, old ruins and houses, walls, &c., at St. Andrews, very abundant; on ruins of Balmerino Abbey.

It likewise grows on rocks at Newport, but *there* it may have escaped from a garden, or been planted.

*Reseda luteola*, L. — Road-side south from St. Andrew's; at Wester Dron Meal Mill; very abundant on rubbish at the lime quarries of Ladaddie.

\**Viola odorata*, L. — Abundant on the north bank of the Eden at Dairsie Church, and descending almost to the edge of the stream; on a bank on the outside of the wall that surrounds the burying-ground of Dairsie; very abundant and luxuriant in Douket Hill, Craigfoodie; Earls' Hall, Leuchars; Clayton; gateway ruins at Airdit. Very probably not indigenous at any one of these stations. (See 'Phytologist,' ii. 868).

*Viola flavicornis*. — Tents muir between Leuchars and Ferry-port-on-Craig.

*Drosera rotundifolia*, L. — Abundant in boggy ground on the higher parts of Keneback Hill.

*Dianthus deltoides*, L. — Craig-log, plentiful. I was told, that a beautiful "laced" variety used to occur; but it has not been observed for some years, and has probably been exterminated by the Cupar florists. May this variety be the *D. glaucus*, L.?

*Silene inflata*, Sm., *β. hirsuta*, is of frequent occurrence. The variety with stem and leaves pubescent, and peduncles and calyx glabrous, occurs sparingly. In an Isle of Wight specimen in my herbarium, of the hairy variety, the peduncle and calyx are *almost* glabrous; and I believe I inadvertently distributed some plants of this character *as the intermediate variety*, amongst some botanical friends.

*Lychnis flos-cuculi*, L. — A variety with white flowers was observed in the corner of a small plantation at the road-side between St. Andrews and Anstruther.

—— *diurna*, Sibth. — In moist shady woods, &c.; plentiful in many places.

—— *vespertina*, Sibth. — Road-sides, dry corn-fields, waste places, &c.; much more abundant than the last species.

*Spergula nodosa*, L. — Moist places on the Tents muir sands.

*Cerastium arvense*, L. — Dry banks, stony braes, and road-sides; frequent by the road between Cupar and Newport; and on that between Guard Bridge and Dairsie muir.

\**Linum usitatissimum*, L. — Occurs occasionally in cultivated fields, &c., but only the remnant of the cultivated plant. It is still cultivated to a small extent in the county, but used to be so very extensively.



*Hypericum humifusum*, L.—Hill near Lochmalonie, in a rather sterile pasture field, 1846.

———— *hirsutum*, L.—Banks of the Eden, near Edengrove, plentiful.

\**Geranium phæum*, L.—Hedge-bank, Pitcullo-loan. Probably an escape from Muirhead garden.

———— *pratense*, L.—Marshy and shady ground by margin of the river Eden, near Wester Dron Mill.

———— *lucidum*, L.—Amongst loose stones, &c., Craigfoodie.

———— *molle*, L.—With very pale flowers. Road-side between Leuchars and St. Michaels.

*Ononis arvensis*, L.—Dry banks by the borders of fields, &c., plentiful. Much smaller in size, and more beautiful in appearance, at the Tents muir, where the spinous form occurs.

\**Trifolium incarnatum*.—Old pasture near Dron. This plant I submitted to the inspection of Mr. C. C. Babington, who has since written me: "The *Trifolium* is a very diminutive specimen of the *T. incarnatum*, and has, I doubt not, been introduced within the last few years as a crop. It has no claims to be considered as a native of Scotland. It will hold its ground for a short time and then die out. Such is the case in many places in England. The variety mentioned in my Manual is a very different plant in look, and is probably a distinct species." Since receipt of Mr. Babington's note, I have made inquiries regarding the pasture in which I found the *Trifolium*, and I am informed, that it has not been touched by spade or plough for "twenty years, at the least." The only way, therefore, in which I can account for its appearance there, is to suppose that it may have migrated from some of the adjoining fields, in none of which, however, did I ever observe it.

———— *repens*.—In a viviparous state. Dry bank in shrubbery at Dron; road-side between Colinsburgh and Pittenweem. I observe the same state of the plant noticed in the report of the Surrey Natural History Society, at page 1016 of last volume of the 'Phytologist.'

*Astragalus glycyphyllus*, L.—Craighall Den, near Ceres, where the plant grows very luxuriantly, and the stem attains a length of several yards under the shade of the trees.

———— *hypoglottis*, L.—On the sands along the east coast. It especially abounds about St. Andrews, and at the east end of the city it grows very luxuriantly among the sand. I have not observed the white-flowered variety, although I have frequently gathered it on the sands on the north side of the Tay.

*Prunus spinosa*, L.—Craighall Den; Dura Den, &c.

\*— *Padus*, L.—Near Dairsie Church.

*Geum rivale*, L.—With semidouble flowers. Den of Kennely. In the same Den I found, in the summer of 1847, a luxuriant state of the plant, wherein the sepals of the calyx were converted into ternate leaves, resembling those of the stem.

\**Fragaria elatior*, Ehr.—Road-side between the Free Church Manse of Dairsie and the village; but the plant has probably come through the hedge from some of the village gardens.

*Agrimonia Eupatoria*, L.—Dairsie Bridge; Blebo; between Anstruther and St. Andrews; very luxuriant in the Den of Craighall, where I have seen it six feet high.

*Rosa spinosissima*, L.—Newton Hill; Pitcullo-loan; east coast, south from St. Andrews.

*Epilobium montanum*, L.—With white flowers; ditch by the way-side between Airdit and the Briggis or Bridge-house muir (Phytol. ii. 823); wayside between Guard Bridge and Seggie Hill; wayside three miles south of St. Andrews. In the two last stations the variety does not seem so permanent as in the first-mentioned station.

———— *angustifolium*, L.—Dura Den.

\**Sempervivum tectorum*, L.—On roofs of Barn; Byre and Bee shed at Hillend; Newton Hill; on roofs of sheds, &c., at Dron; not indigenous.

\**Sedum Telephium*, L.—Old turf wall, Hillend; Newton Hill; Dura Den; road-side near Newburgh.

\**Ribes Grossularia*, L.—Quite naturalized in many places in woods by waysides, &c.

\**Saxifraga umbrosa*, L.—On shady rocks at Craigfoodie, where it has probably been planted, or escaped from the adjoining garden. When I observed the plant in September, 1846, it was out of flower, but very abundant.

———— *granulata*, L.—Very abundant, especially in the northern parts of the county. Most luxuriant specimens are occasionally to be found growing from the crevices of the moist and shady rocks at Westwater.

\**Carum Carui*, L.—Hillend of N. Newton, and some other places, but probably not indigenous, although firmly established.

\**Myrrhis odorata*, Scop.—This plant used to grow beautifully at Hillend of N. Newton, but rural improvement has driven it from that station.

*Dipsacus sylvestris*, L.—Pasture near Dairsie Mills; Bow-butts, Ceres; Craighall Den.

*Tragopogon pratensis*, L.—Sands to the eastward of the city of St. Andrews.

\**Hieracium aurantiacum*, L.—Douket Hill, Craigfoodie, but not indigenous, and has probably escaped from the garden.

\**Carduus Marianus*, L.—Hillend of N. Newton, where I have observed it to grow sparingly for many years; it may, however, have been originally planted. By margins of corn-fields and in gardens by hedges, &c., at Dairsie muir.

*Eupatorium cannabinum*, L.—Bank of a stream near Lochmalonie.

*Artemisia Absinthium*, L.—Hillend of N. Newton, by waysides, &c.

*Gnaphalium dioicum*, L.—Newton Hill; Tents muir sands, and other places.

————— *sylvaticum*, L.—Abundant on a hill near Lochmalonie.

*Filago germanica*, L.—In many places; abundant in pastures, &c., near the finger-post, four miles from Newport, on the Cupar road.

*Aster Tripolium*, L.—Frequent along the coast.

*Senecio viscosus*, L.—In sandy fields, Tents muir.

*Pyrethrum Parthenium*, Sm.—Rocky bank at Pitcullo Castle; near Pittormie; north bank of river Eden at Dairsie Church.

*Pyrola minor*, L.—Brownie plantation, near the Gauldry.

\**Ligustrum vulgare*, L.—Plentiful and apparently wild on a dry, stony and shady bank in Craighall Den, where, however, it does not seem to flower.

\**Vinca minor*, L.—Under trees by the road-side between Lochmalonie and Cupar; Blebo Den; in the Den of Clayton Wood. In none of these places does the plant seem indigenous, although I dare say it is quite naturalized.

*Convolvulus arvensis*, L.—Road-side between Kilmany and N. Newton.

\**Echium vulgare*, L.—In a grass-field at Hillend of N. Newton, where it appeared for the first time in the summer of 1847.

\**Pulmonaria officinalis*, L.—Craigfoodie, where it has probably escaped from the garden. Mr. Alexander Birrell, of Cupar, informed me that he had observed it near Cupar; but I did not get the exact locality from him, and have been unable to find it in that quarter.

\**Anchusa sempervirens*, L.—Amongst stones by the wayside near where Airdit ruins stood; beside ruins in Craighall Den. Not indigenous, although naturalized at both places.

*Solanum Dulcamara*, L.—Under trees in a dry nook by the way-side near Colinburgh; very plentiful and very luxuriant on banks of the Eden about Dairsie and Edengrove, growing amongst willows, &c.

*Digitalis purpurea*, L.—Newton Hill.

*Verbascum Thapsus*, L.—Douket Hill, Craigfoodie; braes near Dairsie Church; Earl's Hall, near Leuchars.

*Origanum vulgare*, L.—Shady bank near Dairsie Church, by the footpath at the margin of the river.

*Prunella vulgaris*, L.—With white flowers. In a field on the back or west side of Lucklaw Hill.

*Pinguicula vulgaris*, L.—Kemback Hill, generally near the summit; in moist places on Tents muir, and along the coast.

*Anagallis tenella*, L.—By the margin of a little bog near Gateshead; Tents muir.

*Primula veris*, L.—In abundance on the banks of the Tay about Balmerino, and extending farther down the river.

——— *elatior*?—At the same place.

*Glaux maritima*, L.—Abundant on the sandy shores of the east coast.

*Statice Armeria*, L.—East coast, plentiful. In a marsh at the mouth of the Motrey the plant grows abundantly, and a variety there occurs with very pale flowers.

*Plantago lanceolata*, *β. altissima*, Koch.—Frequent by waysides, borders of fields, &c., in a rich soil.

——— *lanceolata*, *γ. sphaerostachya*, W. & G.—Newton.

——— *maritima*, L.—Plentiful along the coast on rocks, &c.; especially abundant about St. Andrews, where it likewise grows on the ancient walls, ruins, &c.; road-side (Cupar road) between St. Michael's and the parish kirk of Forgan.

——— *Coronopus*, L.—Plentiful along the coast.

*Chenopodium Bonus-Henricus*, L.—At Pitcullo Castle ruins; road-side between Kemback Kirk and Kemback Mill.

*Salsola Kali*, L.—Sandy shores of the east coast.

*Polygonum Bistorta*, L.—Near Pitcullo Castle ruins; very abundant throughout the burying-ground of Dairsie.

*Rumex sanguineus*, L.—Moist shady place between Dairsie Church and the river Eden.

*Daphne Laureola*, L.—Earl's Hall Wood, abundant.

\**Humulus Lupulus*, L.—Bushy place at Kemback Mill, where the plant was observed in 1846 and 1847, twining upon hawthorn bushes; but improvements have been going on at the place, and the

station will, I presume, be destroyed; abundant in garden-hedges by the wayside between St. Andrews and Guard Bridge. Of course not indigenous.

*Betula alba*, L.—Boggy ground extending westward from Dairsie Church and farm, where I have no hesitation in pronouncing this beautiful tree to be indigenous. The result of my inquiries among the aged inhabitants of the place tend to strengthen me in this opinion.

*Salix pentandra*, L.—Kennely Den, where this beautiful willow grows in great luxuriance, although not very abundant.

— *alba*, L.—Many large trees, as well as small plants of this species, grow along the margin of the river Eden, especially that part of it between Dairsie Mills and Nydie Mill. They do not seem to have been planted by other hand than that of Nature.

— *fusca*, L.—Road-side between St. Andrews and Kennely Den, on a ditch bank.

— *fusca*, *ℓ. argentea*, Sm.—Road-side between St. Andrews and Kennely Den.

— *cinerea*, L.—Margin of river Eden, near Dairsie Church.

— *aquatica*, Sm.—Moist ground between Kennely Den and the east coast.

— *aurita*, L.—Kennely Den; Craighall Den, &c.\*

\* *Ruscus aculeatus*, L.—Near ruins of Pitcullo Castle, where it is probable it may have been planted at a remote period.

\* *Convallaria majalis*, L.—Birkhill Wood. Very probably introduced.

*Luzula multiflora*, Laj.—In woods and occasionally in moist pastures amongst long grass. I am indebted to my kind correspondent Mr. Thomas Bentall, of Halstead, for a knowledge of the distinctive characters of this species. It is quite distinct, and seems permanently so, from any form of *L. campestris* that I have ever met with.

*Listera ovata*, Br.—Wood at Bridge-house muir; wood south from St. Andrews, &c.

\* *Narcissus Pseudo-Narcissus*, L.—Clayton Wood, plentiful, and seemingly quite naturalized, although decidedly introduced.

\* *Crocus aureus*.—Clayton Wood, plentiful, but planted, although it may become quite wild-like in a few years.

\* *Galanthus nivalis*, L.—Bank shaded by lofty trees, Pitcullo Castle,

\* I have several other *Salices* gathered in the county; but these are not so clearly determined as I could wish, and I do not therefore give them insertion in the present list.

in abundance; shady bank beside the trunks of trees at Airdit; north bank of the Eden between Clayton Wood and the island called the "Pouch," far from houses or gardens; river bank at Westwater, close by gardens. Not likely other than naturalized in any of these stations.

*\*Phalaris Canariensis*, L.—In a field of vetches near Newburgh; road-side near Wester Dron; plentiful in Dura Den, where it seems naturalized, although it may not be quite so in the other stations.

*Ammophila arundinacea*, Host.—Sand-links and moors on east coast.

*Bromus asper*, L.—Shaded banks at Dairsie Church, very abundant; likewise in a wood near the town of Cupar.

*Hordeum murinum*, L.—Abundant about ruins and old buildings in St. Andrews.

*Triticum junceum*, L.—Sandy shores of the east coast.

*Carex arenaria*, L.—Exceedingly abundant on the sandy downs of the east coast, to the exclusion, in many places, of every other plant.

I may likewise mention the *Eutoca Wrangeliana* and *Eschscholtzia crocea*, two garden annuals, both of which I have found growing amongst stones, between Dron and Nydie Mill, at the edge of a foot-path. These have undoubtedly no claims to be considered as natives. The *Eschscholtzia* likewise occurs in great abundance in a piece of ground lying waste in consequence of the Edinburgh and Northern railway operations. When I last observed it at this station it was growing profusely amid a luxuriance of *Fumaria officinalis*, *Galium Aparine*, *Sinapis arvensis*, and other weeds, and seemed indeed as much at home as any one of them. It may not be out of place to add, that *Primula vulgaris* occurs in abundance around Pitcullo Castle, with various colours of flower, some purple of different shades, others white, pink, &c., and not a few of the common yellow hue. The yellow-flowered plants may be supposed to be the natural inhabitants of the banks; but the others have undoubtedly been introduced at some period, although that may be remote.

GEORGE LAWSON.

212, Perth Road, Dundee,  
April 10, 1848.

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BOTANICAL SOCIETY OF LONDON.

*Friday, April 7.*—John Edward Gray, Esq., F.R.S., President, in the chair.

The following donations were announced :—

"The Twenty-seventh Report of the Council of the Leeds Philosophical and Literary Society at the close of the Session 1846-7;" presented by that Society.

"On Conjugation in the Diatomaceæ," and "Further Observations on the Diatomaceæ, with Descriptions of new Genera and Species," by G. H. K. Thwaites, Esq.; presented by the author.

Mr. Thomas Moore communicated a paper "On a Variety of *Lastrea Filix-mas* found by him in the Neighbourhood of Guildford, Surrey, in December last." (See Phytol. iii. 137).—*G. E. D.*

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*On a Variety of Lastrea Filix-mas.* By THOMAS MOORE, Esq.\*

WHILST walking through a wood in the neighbourhood of Guildford, in December, 1847, my attention was particularly arrested by a remarkable fern, which I at first thought to be a species distinct from any which I had previously seen. I was accordingly induced to gather one or two of its then half-perished fronds, with the intention of examining them more closely at a leisure moment. On giving the plant this further examination, I found it to constitute a very distinct variety of *Lastrea Filix-mas*, apparently identical with examples which I had observed in the herbarium of the Society, from King's Cliff Valley, near Bridgewater, sent by Mr. Clark. Subsequently Mr. Newman assured me it was the variety of that species which he had figured at p. 197 of his 'History of British Ferns,' and mentioned at p. 201 in these words: "This plant in habit and general appearance much more nearly resembles *Athyrium Filix-fœmina* than the species which I am now describing (*Lastrea Filix-mas*), but the scales of the stem, the texture of the frond, and the character of the involucre (although I have only seen it after the bursting of the capsules) are decidedly those of *Filix-mas*, or a closely allied species." I had supposed Mr. Newman's plant and my own to be the same, although he does not very distinctly explain, nor indicate its peculiarities.

What should form a species, or be considered a variety among plants generally and ferns especially, is at present decided by no very explicit rule; and while this continues the case, it seems the most desirable course to rank the plant under notice as a variety of *Lastrea Filix-mas*, although very distinct as such from the common

\* Read before the Botanical Society of London, 7th April, 1848.

state of that species. I propose that it should bear the name of *incisa*.

I will now, in a brief review of the species (British) and its varieties, endeavour to point out their differences.

*Lastrea Filix-mas*, Presl. — Fronds broadly lanceolate, sub-bipinnate; pinnæ linear-lanceolate; basal pinnules more or less distinct, the rest confluent all oblong, crenato-serrate or with toothed incisions; lateral veins of pinnules simply forked or 3- many-branched; sori in a proximate line on each side of midvein; indusium entire, very persistent.

Var. *α*. — Pinnules obtuse-oblong crenato-serrate, their lateral veins simply forked, or sometimes 3-branched; sori confined to lower half of pinnules.

*Aspidium Filix-mas*, Swartz, Willdenow, Smith, Hooker, &c. Common.

Var. *β*. *incisa*. Robust; pinnules elongate and (especially those next the main rachis) regularly divided by deep incisions, the lobes more or less serrated; lateral veins many-branched; sori extending nearly the entire length of pinnules. Schkuhr's *Aspidium depastum* appears to be a monstrous state of this variety, which is not the *Aspidium erosum* of Schkuhr, as suggested by Mr. Francis, that plant being figured with glandular indusia, and otherwise different.

HAB. Near Bridgewater; near Guildford; near Cocker mouth.

Var. *γ*. *abbreviata*. Small; sori confined to base of contracted or obsolete pinnules forming a linear series on each side of midrib of pinnæ.

*Polystichum abbreviatum*, De Candolle (fide Newm. & Bab.) ? *Aspidium Filix-mas recurvum*, Francis.

HAB. Probably not uncommon in dry situations.

A monstrous form of the variety *incisa* in the herbarium of the Society (King's Cliff Valley, near Bridgewater, Mr. Clark), has the pinnules very irregularly and deeply cleft, and manifests an indication of producing forked pinnæ, in which state it very nearly coincides with Schkuhr's figure of *Aspidium depastum*.

A curious form found near Woolwich by Dr. Bossey, in the herbarium of the Botanical Society, though fruitful, has the lobes of the pinnæ depauperated, giving the pinnæ the appearance of the leaves of the *Comptonia asplenifolia*. I am not aware to what extent it may have been observed; probably merely an individual plant which had been affected by local causes.



The fronds of this species of *Lastræa* grow in a circle from the crown of the caudex, and attain from one to four or five feet in height, the base of the stipes being densely covered with pale-coloured, chaffy scales, of various sizes: they are sub-bipinnate, broadly lanceolate, often oblong-abrupt, with an acuminate apex. The pinnæ are linear-lanceolate, acute, alternate, the lowest shorter than those about the middle of the frond; they are pinnate next the main rachis, the pinnules having a narrow attachment, but being scarcely stalked; in the rest of the pinnæ the pinnules are usually more or less combined at the base, most so in the variety *abbreviata*, but less so in the variety *incisa*, than in the normal state, in which latter the pinnules and lobes are of an oblong-obtuse outline, crenato-serrate on the margin, and more acutely and closely serrate at the apex. In the variety *incisa* the pinnæ are somewhat more distinctly pinnate, and they are also more elongate, and narrow at the point, the margins being more or less deeply incised or lobed, each of the lobes having from two to four or five serratures. The midvein of the pinnules and lobes is sinuous; the lateral veins are alternate, and they become branched near the midvein—in the normal plant usually simply forked, or occasionally with the posterior branch again forked; the anterior branch on a greater or less number of these lateral veins at the base of the pinnule bears a sorus just beyond the fork, so that the sori in this case form a short line on each side of and near the midvein, extending about half the length of the pinnule. In the variety *incisa* the lateral veins are more compound, being sometimes three- sometimes four- and at the base usually many-branched; but the sori, as far as I have observed, are only produced on the anterior branch, as in the more common plant, so that they are also ranged in a line on each side the midvein; they extend, however, from the base nearly to the apex of the pinnule. In the variety *abbreviata*, on the other hand, the sori are confined to the base of the obsolete pinnules, forming a line against the rachis of the pinnæ. The sori are covered by smooth, very persistent, reniform indusia, each of which is connected to the back of the vein by the sinus, which is turned away from the apex of the pinnule or lobe.

THOMAS MOORE.

April, 1848.

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*Further Remarks on the Second Edition of the 'London Catalogue of British Plants.'* By JOSEPH SIDEBOTHAM, Esq.

MR. WATSON'S letter in the last number of the 'Phytologist' (Phytol. iii. 83), asking "Is *Gentiana acaulis* wild in England?" seems to call for a word of reply from me, inasmuch as it casts a doubt on my former statement. I am sorry that it is not in my power to give any further information on the subject, as Mr. Crozier has been dead some time, and of Mr. Townley I have seen nothing for some years, nor do I know where to find him. There can be no doubt as to the species referred to being the *Gentiana acaulis*; no one with half an eye could mistake it for any other British gentian; therefore the only conclusions are, either that Mr. Townley found the plant apparently wild, or that he told a deliberate falsehood; the latter I cannot believe to be the case, as he could have no motive for practising such a deceit. The only doubt I have is that it had been introduced, as *Linaria Cymbalaria* was on the rocks in Wales. I am glad Mr. Watson has taken up the subject, as no doubt he will tell us what is meant by a *naturalized* species and one that is *imperfectly naturalized*, and thus explain some of the apparent inconsistencies in the new 'London Catalogue,' so many of which were pointed out when the first edition made its appearance, and of which there was such a meagre attempt at an explanation.

Mr. W. says that the three other species mentioned in my letter are "certainly introduced, but imperfectly naturalized:" this, of course, calls for *his* definition of the word naturalized as regards plants.

Allow me to give my idea of the meaning of the term. When a plant is introduced into another country and establishes itself, so that either by seed or otherwise it propagates, and increases the geographical range of its species, without the interference of man, and does not again disappear in the course of a few years, I should call the plant naturalized. I am much obliged to Mr. Pascoe for his remarks on the subject, especially as regards *Oxalis stricta*, and quite agree with him as to the difficulty of drawing a line of distinction between the native, naturalized, and imperfectly naturalized species.

The line which the compilers of the 'London Catalogue' have drawn appears to have been executed with a very trembling hand, as it is singularly indistinct in some places, and in others exceedingly crooked, and apparently drawn without regard to any rule or guide. By what rule, for instance, should they consider that *Cheiranthus*

Cheiri and the Vincas, &c., are not native, whilst *Impatiens noli-metangere*, *Helleborus foetidus*, *Trifolium ochroleucum*, &c., are put down as undoubtedly indigenous. Surely it is very hard upon the turnip to place it side by side with such plants as *Mimulus luteus*, and on the pear-tree to be excluded altogether, when such plants as *Sisyrinchium anceps* are let in. What can we infer but that the former have *lost caste* on account of their antiquity, and that to find favour with the compilers of the 'London Catalogue' as a naturalized species, the plant must be simply *a new discovery*.

JOSEPH SIDEBOTHAM.

Manchester, April 17, 1848.

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*Notes of a Five Hours' Ramble on the Findhorn.*

By ALEXANDER CROALL, Esq.

SOME will perhaps smile at the idea of a botanical excursion of *five hours* in length; but those who have little time to spare must make the most of it they can; and after all it not unfrequently happens that when we have least time we do the most good.

The result of our short ramble was certainly such as to leave room for regret that our time was so limited; while we had every reason to be satisfied with the enjoyment we obtained, as well as with the specimens collected.

Having previously made arrangements for spending a day on the banks of the Findhorn, in company with Dr. Innes, of Forres, a no less amiable man than an acute and enthusiastic botanist, we appointed Saturday, 8th April, for our excursion.

Our first peep at Aurora was rather chilling for our spirits. A heavy shower of snow had fallen during the night, and shrouded all nature in a wintry mantle. The sun, however, soon dissipated the nebulous canopy, and the snowy shroud gradually yielded to his influence. The air, however, was still cold, and showers of hail and sleet falling at intervals, kept our courage at rather a low temperature. Now or never, however, was our motto, and off we started, between ten and eleven a.m., and, without any incident worthy of note, reached our destination about twelve. Having put up our horse and gig at the farm-house of Outlaw-well, we proceeded to the banks of the river. Occasional showers were still falling, and the wind was keen and biting; but the high banks of the river, crowned with their fringe of dense

wood, soon screened us from the blast, and the beautiful panorama with which we were now encircled soon banished all thoughts of the cold and the snow, and made us regret that days instead of hours were not at our disposal for its investigation. We might willingly forbear all general details in this short notice were it not in the hope of inducing some more able botanist, with more time at his disposal, to spend a few days on the banks of this romantic stream.

The Findhorn, for the greater part of its course, flows over a wild and rocky channel, and its banks are mostly composed of steep and rugged rocks, clothed in all the richness of nature's garniture, and would no doubt well repay the most careful researches of the exploring botanist. The space to which our ramble was on this occasion restricted, was in the vicinity of the small village of Sluie, at the point where the primary or igneous rocks first make their appearance, and did not extend beyond a quarter of a mile in length. The banks of the river are here mostly high and precipitous, often projecting over the stream to a considerable extent, rendering all access to its margin impossible. Here and there the feet of the fisherman have worn a path, narrow, difficult, and often dangerous, down to the margin of the stream, along which you can proceed for a short distance, when you must often retrace your steps to the summit, and then, by a similar pathway, make another descent to the richly moss and lichen-clad rocks that skirt the river. The upper part of the bank is densely clothed with oak, birch, larch, spruce, and Scotch fir, here and there relieved by the white polished bark of the poplar, or the yellow drooping catkins of the willow.

From the bottom as well as from the summit of the projecting cliffs, some beautiful and highly interesting views are obtained of the dark winding stream; at one time rushing over its rough craggy bed, foaming with all the wild sublimity of mountain grandeur; at another, it coils silently over some projecting ledge into a dark and almost fathomless pool, in whose eddying recesses the salmon play their gambols in security. Here you may see the patient angler, seated on a crag, almost motionless as the rock beneath him, eagerly watching his nibbling prey. There you may observe an old man, seated on a shelf scarcely larger than his body, at the bottom of a fall, up which the poor fish are ever and anon vainly endeavouring to make their way, and as they fall backwards drop quietly into the net which the fisherman holds in his hand ready to receive them. At one spot you perceive the eyry of the hawk or the eagle, with the watchful bird seated on a crag above, of which he seems but to form a part; while

a little beyond a populous colony of herons are already busily engaged in the duty of incubation.

The upper part of the bank among the wood is densely carpeted with a profusion of the more common species of cryptogamics; while the cliffs below are in many places mantled with a profusion of *Saxifraga aizoides*, now only beginning to expand its dark green foliage, but which, when in flower, will light up these rough crags with a perfect glow of beauty. In many places, the damp rocks are widely curtained with *Hypnum commutatum*; while from the drier cliffs the more delicate tresses of the ivy, the honeysuckle, and the bramble are suspended in profusion. At these interesting scenes, however, we had only time to glance, our object being among the cracks and crevices of the rocks below.

Our first descent was effected by a sloping bank, a little below the village. This slope was covered towards the bottom with stones, apparently tumbled down from the fields above. They were now covered with a close carpeting of mosses of various species, among which we were quite delighted to find *Bryum ligulatum*, affine, and *roseum*; the first two fructifying abundantly; the last, although in great plenty here, as in many other places in the district, has not yet been found in fruit. *Bryum punctatum* and *turbinatum*, *Jungermannia Lyoni*, *Hypnum loreum* and *molluscum*, *Fissidens adiantoides*, &c., &c., were plentiful in fruit. Leaving this spot we proceeded to the wet rocks above the village, where we found, among a variety of other less interesting species, *Bryum marginatum*, *rostratum*, *punctatum*, *capillare*, *turbinatum*, and *albicans*, *Andræa rupestris*, *Anictangium ciliatum*, *Dicranum pellucidum*, *Weissia crispula*, *Fissidens adiantoides*, *bryoides*, and *taxifolius*, *Hypnum alopecurum* and *ruscifolium*, *Bartramia calcarea*, *Edmon.*, *Jungermannia pumila*, *Lyoni*, *julacea*, *pubescens*, and *Blasia*, *Solorina saccata*, *Sticta pulmonaria*, *Placodium plumbeum*, *Peltidea aphthosa*, *Nostoc commune*, &c., &c.

*Bryum affine* I have found frequent in the district, but seldom in fruit. *Br. albicans* is also frequent but barren. *Fissidens adiantoides* hangs in luxuriant festoons from the dripping rocks; the fronds sometimes six inches in length. *Bartramia calcarea* was also plentiful, but the setæ were quite young, and the direction of the foliage was very variable; stems with erect, and others with secund leaves were often found on the same plant. *Solorina saccata* and *Placodium plumbeum* were also abundant in fruit. *Peltidea aphthosa* was barren. *Jungermannia Blasia* was also in fruit. This I also found in fruit abundantly on the day previous, in a wild rocky ravine near the Manse of

Birnie, in a ramble with the Rev. George Gordon,\* where it was associated with remarkably luxuriant specimens of *Diphyscium foliosum*.

The above list of species is small, but if viewed in connexion with the season, the weather, and the limited time at our command, is not unsatisfactory, and sufficient at least to induce a desire for more extended investigation. Dr. Innes has found many interesting species in the neighbourhood of Forres, and I doubt not that the upper part of the river would amply repay the researches of a careful explorer.

ALEXANDER CROALL.

Cothill of Guthrie, Frickheim,  
by Arbroath, April, 1848.

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*Reply to Mr. Sidebotham's "Further Remarks on the Second Edition of the 'London Catalogue of British Plants.'"* By HEWETT C. WATSON, Esq.

I RECOGNIZE the right of Mr. Sidebotham, as of any other botanist, to publish dissentient opinions respecting the categories to which species are referred in the 'London Catalogue of British Plants.' (See Phytol. iii. 140). Where such opinions are founded on correct knowledge, or are expressed with a view to elicit explanations which cannot be conveyed in a list of names, they are entitled to respectful attention, and would command it from one or other of the editors of the 'Catalogue,' either in the way of immediate response, or by notes for use in preparing any future edition. But the insufficiency of knowledge of the subject, by which Mr. S. supports the self-sufficiency of his strictures, will exonerate us from any obligation to answer them in detail. Nor should I have troubled myself to notice at all the last article from Mr. Sidebotham's pen, had he not mingled misstatement with mistakes or misapprehensions. If not incumbent, it must be at least allowable for any one to repel false assertions respecting himself or his doings.

In the paragraph which is continued from page 140 to the cover of the May 'Phytologist,' and which may be expected to appear on page 141 of the June number, Mr. Sidebotham writes thus: "Surely it is very hard upon the turnip to place it side by side with such plants as

\* Mr. Gordon takes a lively interest in the progress of Natural History, only excelled by his devotedness to the spiritual interests of his charge.

*Mimulus luteus*, and on the pear-tree to be excluded altogether, when such plants as *Sisyrinchium anceps* are let in." Now, if any exact meaning is to be gathered from that vague style of expression, it must involve an assertion, on the part of Mr. Sidebotham, that the pear-tree is excluded from the list of British plants, in the second edition of the Catalogue referred to. But any botanist who will take the trouble of looking for the name of the tree in the Catalogue, may see "*Pyrus communis*," in its proper place, no. 362, printed in the ordinary type used for other undisputed natives. Thus supported by published evidence, accessible to any botanist, I am justified in saying that Mr. Sidebotham has made out a seeming case against the 'London Catalogue' by a glaring *mis-statement of fact*.

Were I to put down my pen here, it would leave Mr. S. under a charge very like that of deliberate falsehood. But I will not do so, because I think an explanation may be suggested, which will reduce the mis-statement into another example of that imperfect knowledge of British Botany, which his writings have usually betrayed, and so place it against him as an instance of intellectual rather than moral deficiency. In the list of 'Excluded Species,' appended to the 'London Catalogue,' is the name of the service-tree, "*Pyrus domestica*," there placed with the sign of imperfect naturalization, because only a solitary tree of that species is known to be apparently wild in this country. Mr. Sidebotham may possibly have seen the name of *Pyrus domestica* among the excluded species,—may have supposed it to be the botanical name of the pear-tree,—and may have neglected to look for the latter in its proper place in the general list. It is true that such an explanation implies inadequate knowledge and hasty assertion; but I would rather refer a mis-statement to intellectual deficiency than to moral defect.

Now, it may signify little to myself or others, whether the mis-statement was an intentional falsehood,—whether it was a reckless assertion made without care of its truth or falsity,—or only a simple blunder through ignorance of the difference between the pear and service-trees. Whichever of these explanations be received, it will leave Mr. Sidebotham in a position not likely to give weight to his opinions on the 'London Catalogue,' nor to recommend him as a trustworthy botanical critic. He will show greater prudence or wisdom in future by abstaining from strictures upon others until he can make them from the vantage ground of knowledge.

Thames Ditton, May 7, 1848.

H. C. WATSON.

*Carex riparia* and *C. paludosa*. By WM. A. BROMFIELD, M.D.

BESIDES the characters commonly assigned in books for the discrimination of these two closely allied but very distinct species, there is another, which, as far as my own experience goes, is of equal stability with those formerly noted. In *C. riparia* the connectivum of the anther is produced into a small but very distinct awn-like point, which is either entirely obsolete, or reduced to an extremely minute apiculus in *C. paludosa*, a difference which, though not verbally noticed, is accurately expressed in the admirable figures of these species in Curtis's 'Flora Londinensis.' The anthers of some Carices, as *C. lævigata* and *C. binervis*, are spinulose at the tips. This circumstance, and the above instance of the production of the connectivum into a subulate point, may possibly be found capable of affording good discriminating marks, as the latter certainly appears to do with regard to the species in question.

W. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,  
May 9th, 1848.

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BOTANICAL SOCIETY OF LONDON.

*Friday, May 5, 1848.*—John Edward Gray, Esq., F.R.S., &c., President, in the chair.

Francis Brent, Esq., of Liverpool, was elected a member.

Donations to the library were announced from the Horticultural Society of Berlin, and Mr. T. W. Barlow.

British plants had been received from Mr. James Lynam.

Mr. T. H. Goulding read a paper "On the Botany of Devon and Cornwall."—*G. E. D.*

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*Further report of Experiments on the Cowslip and Oxlip.*

By HEWETT C. WATSON, Esq.

IN the pages of the 'Phytologist' for June of last year, I reported the results, incompletely shown at that time, of two additional experiments, made with a view to ascertain the extent of variation which will occur among plants raised from seeds of the cowslip or oxlip.



My copy for 1847 being in the hands of a binder, I am unable to refer to the exact pages, or to recall precisely what was there stated. But the full results of the two experiments are now before me, and can be recorded.

In 1846 I marked a plant of an ordinary cowslip (*Primula veris*), also one of the "Claygate Oxlip" (*P. vulgaris* var. *intermedia* of Lond. Cat.), both then in flower in my garden, and sufficiently near other species and varieties to be hybridized by bees, if hybridization is thus effected among these plants. The seeds of these two plants, so marked, were afterwards sown in flower-pots, which had been first carefully washed clean, and then filled with earth in which it was a moral certainty that no seed of any *Primula* could be lurking. The young plants were subsequently removed from the flower-pots, and planted out in two separate rows, in loamy soil, and distant a few inches from each other. Some of the young plants flowered in 1847, as recorded in the 'Phytologist;' others, not until this present year. The results of the two experiments are now before me, as follows:—

*First.*—From the seeds of the Claygate Oxlip (*P. vulgaris* var. *intermedia*) fifteen plants are now living, and fourteen of these are flowering. Scarcely two of these are quite alike, the varieties gradually passing one from another into the two extremes of cowslip and primrose. Grouped according to the varieties given in the 'London Catalogue,' they will stand thus:—

- 4 *Primula vulgaris* (or primroses), 2 of them red-flowered, and all producing one or more umbels elevated on common scapes, in addition to the single-flowered pedicels, arising from the sessile umbels, as in the wild primroses.
- 5 *Primula vulgaris* var. *caulescens*, all the flowers being in umbels on elevated common scapes, 2 of the plants producing dingy reddish flowers.
- 2 *Primula vulgaris* var. *intermedia*, or plants very closely resembling the parent plant.
- 2 *Primula veris*, with the teeth of the calyx more acute than usual in wild cowslips, but still quite different from the subulate calyx-teeth of the true primrose.
- 1 Plant without flowers, but a primrose by the form and pubescence of the leaves.

*Second.*—From the seeds of the true cowslip (*P. veris*) there are sixteen plants, all yellow-flowered; besides one red cowslip, which, owing to an accidental misplacement, cannot be positively included as one of the lot, although most probably such. Among these plants

there is a gradual transition or series ranging from the ordinary cowslip into the Claygate Oxlip, or even a little nearer to the caulescent primrose than is the latter. Placed in groups, they may stand thus:—

- 10 *Primula veris*, most of them with flowers larger than usually seen in the wild cowslips of the meadows, a difference which may be attributed to the vigorous growth of young plants unimpeded by other roots around them.
- 2 *Primula veris* *var. major*, differing from the true cowslip by their larger and flatter corollas, paler in colour, and by the more acute teeth of their calyces.
- 4 *Primula vulgaris* *var. intermedia*; the flowers more like those of the primrose than those of the cowslip, in colour, size, and form.

In connexion with the previously recorded experiments, I seem now to be justified in asserting; *first*, that seeds of a cowslip can produce cowslips and oxlips; and *secondly*, that seeds of an oxlip can produce cowslips, oxlips, and primroses. The transition from the cowslip (*P. veris*) to the primrose (*P. vulgaris*) is thus complete, but not direct or immediate; for, I have not yet ascertained that a typical *P. vulgaris* can produce a typical *P. veris*, or *vice versâ*, without passing through or producing the intermediate link of the oxlip, namely, the *P. vulgaris* *var. intermedia* of the 'London Catalogue,' and several times mentioned in the 'Phytologist,' under name of the "Claygate Oxlip." I employ the term *oxlip* to designate the intermediate form, because it is undoubtedly to that variety of primrose or cowslip, or hybrid of both, that rustics apply the name: they do not intend Jacquin's *P. elatior*, the Bardfield Primula, under a name which is familiar in various counties.

It may here be observed that, in my own experiments, the seeds have always been taken from a single plant, examined and marked while in flower, and dried examples of it preserved in my herbarium; so that, whether a typical form of cowslip, or a variety of oxlip, I am able to point out the parent or its counterpart exactly. In a former volume of the 'Phytologist' (i. 218 and 313) I mentioned that the antecedent experiments wanted one or other of these requisites of precision; and it therefore appears to me to be still a desideratum, to show by experiment that a primrose can produce a cowslip, or a cowslip produce a primrose, directly at the first descent, without an intermediate stage of the oxlip form. The hybridization hypothesis would be negatived by the crucial experiment of this direct production or change.

That hypothesis wears an aspect of plausibility so long as the species on either side can only be shown to produce the intermediate forms, or these latter to reproduce the two typical species, along with their own image;—strange as it would be, to find a she mule producing mules, horses and asses.

HEWETT C. WATSON.

Thames Ditton, May 15, 1848.

*Notice of 'The Principles of Nature, her Divine Revelations, and a Voice to Mankind.* By and through ANDREW JACKSON DAVIS, the Poughkeepsie Seer and Clairvoyant. London: John Chapman, 142, Strand. Stereotype Edition. 1847.'

THE unparalleled success of the 'Vestiges' has called into existence, amidst an ocean of similar trash, a translation of Oken's 'Physiophilosophy,' and the 'Divine Revelations' of the Poughkeepsie Seer. The three works have a very similar tendency: that of substituting some philosophical hypothesis for the religion which the Old and New Testaments teach and reveal. All three authors assume a faculty of judging independently of facts. The Vestigian trusts mainly to the inventive genius of Lamarck; Oken "has a kind of inspiration;" Davis reveals his physiophilosophical ideas "under the influence of mesmerism." The first and last appear to me imposters: they must pardon me in saying that I doubt their own faith in what they write: Oken is in earnest, but, alas! it is the earnestness of a lunatic. Happy were it for our science if these mischievous writers would turn their attention elsewhere!—gladly indeed would I escape the thankless task of assailing others!—but after having for fifteen years publicly advocated the study of Natural History, it seems incumbent on me to use my feeble efforts in defending it against those who would avail themselves of the science as a means of promulgating irreligious opinions. Why Botany should be brought into antagonism with Scripture, and why leaves and flowers and fruits should invalidate the Christian religion, are problems I cannot solve; but the 'Poughkeepsie Seer' promulgates this doctrine, and readers and admirers seem to have been so abundant, that it was found necessary to stereotype the work, in order that a supply may be continually kept up commensurate with the demand.

I have ever treated with contempt the ill-judged attempts to

depreciate the study of Natural History on account of its supposed tendency to infidelity: it seems to me a manifest absurdity to accuse God's works of antagonism to His written law, and to assert that a knowledge of His works could induce a violation of His law!—that the revelations of Nature could interfere with the revelations of religion!—that truth could clash with truth! Absurd, however, as is the attempt to bring Natural History into disrepute on the score of this imagined clashing with religion, it is far less objectionable than the opposite fallacy, now reduced to a science under the name of *Physiophilosophy*, which professes to found a philosophical religion on the phenomena of Nature, irrespective of Scripture and subversive of our faith in its divine origin. This physiophilosophy supplies the very argument wanted by the timid religionists alluded to above, and verifies and irrevocably confirms their worst apprehensions of danger from the science. On this ground alone, and not from any idea that the Bible or religion require or can receive assistance from my pen, I have ventured on these observations, and having expressed my strong disapprobation of physiophilosophy generally, I will now confine my observations to its boldest and most fashionable exponent, Andrew Jackson Davis.

I have already said that I consider this man an imposter. I do not give the slightest credence to the statement that he is an illiterate man, or that any portions of his revelations are the result of mesmeric clairvoyance, or that there is anything whatever in his state, or attainments, or communications, beyond the combination of good memory, extensive miscellaneous reading, and fertile invention. I readily give him credit for all this, but inasmuch as he denies such assistance, and attributes his knowledge to a totally different source, I cannot but regard him as an imposter; and I take up his work as the compilation of a man who has brought much jumbled reading to his aid, and who, where all information was wanting, has shown considerable aptitude in the science of invention.

Without attempting to answer the writer (and apologizing to the reader for introducing the paragraph at all), I will show how this totally illiterate man disposes of the Trinity.

“The original conception of the Trinity arose from the three supposed beings called Parama, Vishnu, and Siva. \* \* \* This Trinity was not established in the world until the Egyptian priests of the Sun, and the Persian Magi, promoted the three beings to a higher degree of potency than they originally possessed; and the conception was grasped by Zoroaster, who immediately converted them into three united beings.”  
—ii. 552.

Now Mr. Davis is said to gain his acquaintance with the Trinity, Parama, Vishnu, Siva, Egyptian priests of the Sun, Persian Magi, and Zoroaster, by Divine revelations of Nature when in a state of mesmeric clairvoyance. If transatlantic naturalists like to believe this they are quite at liberty to do so, but I cannot admire the taste which dictates its reproduction before the British public : and I turn with disgust from such palpable impossibilities as this, to those passages in which the author can have received no assistance from books or from observation, and which are as purely fictitious as the adventures of Munchausen, the flying Dutchman, or the jumping baron ; and, in my humble opinion, rise no higher as objects for the attention of the learned. That readers and admirers can be found for such trash must be a matter of regret to all who are capable of reflection, but that such readers and admirers should be among the honourable and influential literati of the day is a fact 'to make angels weep.' My extracts are purely phytological.

*Vegetation of Saturn.*—"There are four general classes of vegetable developments here existing. One class assumes high and bulky forms, but it is produced only near the poles, where exist the minimum amount of light and heat. These do not exist near the equator, nor in the vicinity of water. They are gigantic vegetable developments in the form of trees ; but the kinds of materials composing them are not to be found in any higher order of vegetable formation. The second class has a smooth, slim body, and the branches in length are twice that of the body ; and they cast a deep shade. They are in appearance similar to the Upas, but not in quality or composition. These bring forth delicious fruit, which is long in shape, internally white, and encompassed with a thick external coating. The branches that first eject themselves from the body are several feet from the earth, but not quite so high as it is from these to the top. This class should be understood as the second in the order of formation—as the ultimate and perfection of the former class. The third in order presents itself as a more perfect vegetable. This rises but a few feet above the surface of the ground. It has several descending boughs, which when developed act as new bodies by fastening themselves as roots in the earth. This vegetable is much complicated in its parts. Its location is near the equator, and to this fact its peculiarity may be attributed. This brings forth a kind of pulse-fruit. Being exceedingly nourishing, it enters very frequently into the composition of animal forms.

"The fourth vegetable formation is the last developed and most perfect. Being a succeeding development of all beneath it, its composi-

tion is much more perfect than that of others. Therefore it stands as an ultimate of the vegetable kingdom, comprehending the essences of all below its high order of being. Its roots and trunk are very long and slender, and it develops from the bottom of the trunk to the shooting forth of the branches, calices corresponding to the petals of the bud and its fruit. It is not high, but grows with exceeding spontaneity; and it is fitted for the uses of the animal economy. It is produced in one half of one of the years, at the equator—reproduced twice in one of this planet's years. And this is the most useful vegetable upon the surface of Saturn.

"There are intermediate formations, from the lowest to the highest, in the vegetable kingdom. But it would be impossible to classify these intermediate species; and the four generalizations give a distinct conception of the vegetable developments of this plant; the object being only to establish progressive succession. And this being founded in natural and invariable laws, analogy confirms this revelation." — i. 176.

*The Vegetation of Jupiter.*—"The vegetable productions of Jupiter are more extensive than those of Saturn. Of the various species of plants existing upon its surface, a detailed description is not necessary to be given. But a general classification will be made of the prominent kinds existing, in order that the perpetual ascension may be conceived of as here preserved in order and harmony. There are on this planet upward of three hundred thousand species of plants. But their connexions with each other are so intimate, that they warrant but five general classifications.

"The *first* of these is an exceedingly large and bulky tree, whose circumference varies in size according to the circumstances under which it is produced. It is formed of the compositions existing in the planet's materials; and being the strongest production of the vegetable kingdom it is consequently the most imperfect. It has heavy seams formed of complex fibres, which are fully developed about the branches in thin ejected limbs, upon which exists a species of fruit. This fruit is of a nature suitable to enter into the composition of the lower order of animals, but is exceedingly deleterious to the higher classes.

"The *second* species of plant differs from the other in height, bulk, and general appearance. It is encompassed with a thick bark. The productions of this tree are limited. It brings forth a kind of juice, which flows freely from the cups existing upon its exterior. This is useful, as it is very nourishing and invigorating to the animal economy.

"The *third* class of plants slightly typifies the wheat,—and is more homogeneous with the constitution of the higher orders of animals.

"The *fourth* class approximates still nearer to animal existence. Being more perfect in composition than the others, it presents a variegated foliage, the extracts from which enter essentially into the forms of the first animals.

"The *fifth* class being an ultimate of the four others described, is necessarily more exalted in composition. This species is a kind of *zoophyte*,—which may be considered as mediator between vegetable and animal existences. For while it sustains a close connexion with the former kingdom, it throws feelers of sensation into the latter, and thus it partakes of both vegetable and animal life."—i. 187.

I may perhaps here make a passing allusion to the human inhabitants of Jupiter: they walk on all fours; they inhabit tents lined with a bluish bark: possessing "an expansive and sweeping intellect, they comprehend the laws and relations of their being with one concentrated thought."

Mr. Davis does not give us any detailed account of the phytology of the asteroids which intervene between Jupiter and Mars, but we are informed that they possess vegetables, and are shortly about to have a creation of animals: we hope Mr. Davis will give the world due notice of the event when it occurs. Concerning the vegetation of the remaining planets, we are furnished with the following brief but interesting particulars.

*The Vegetation of Mars.*—"Its surface abounds with extensive vegetable productions, these being still more numerous than those of Jupiter, less perfect, but superior to those of Earth. The animal formations are not so extensive; but they ascend from the lowest up to man in successive modifications of forms which correspond generally to their interior principles. And man there, is in a much more exalted state, both physical and mental, than the inhabitants of the earth; but he does not approach the high state of exaltation and refinement which characterizes the other planets' inhabitants. I will mention the kinds of vegetable productions that are most used, and not enter into a classification of the general species of either the vegetable or animal kingdom. There is a species of tree existing among them that is of vast use. It germinates and gradually develops itself into a stout, bulky form, representing the spiral. Its branches are long, and extend far around the trunk. Its leaves are very broad, with a mixture of a bluish and reddish color, with more prominence of the green. Its blossoms are very beautiful, and its fruit is esteemed among them as

the most useful upon their planet. The form of this fruit is very round, typifying slightly the cocoa-nut, and is used among the inhabitants as a kind of bread; and its action upon the system is highly invigorating. The bark of this tree is also extensively used for many purposes, with a kind of glue that proceeds from another tree. It is used in the construction of their habitations and in the formation of garments. But there is another vegetable of a low stature, that produces very fine and beautiful fibres, which are very neatly woven together, and used generally among them as their main apparel."—i. 197.

*Vegetation of Venus.*—"There are many species of plants existing upon its surface. It is unnecessary to classify them; for it would be of little importance or use to the world. The trees are generally low, very stout, and very extensively branched. From these to the most delicate plant there is a constant assuming of higher stations, according to the ascending degrees of refinement. Yet there is much variegated foliage, and many useful and tender plants existing upon its surface."—i. 203.

*Vegetation of Mercury.*—"The vegetable productions of this planet are not very numerous, and are not so refined in composition as those upon other planets. There are but three general classes of plants, and from the lowest to the highest of these we find upon earth a correspondence. But as to form and height and beauty, they do not equal those of any other planet. The highest vegetable productions generally rise but a few inches above the surface. There are no flowers; nor foliage, nor trees, that cast pleasing shades: but all vegetable forms are full and gross, rising but little from the surface of the ground."—i. 206.

However firm my conviction of Mr. Davis's extensive reading in theology, ancient history, and all the subjects connected therewith, I feel disposed to give him credit for profound ignorance of botany: there is internal evidence of this: he may have rapidly skimmed over the introductory works of compilers, caught at the meaning of terms, and learned by rote without attempting to understand certain of the more ordinary definitions; but as to botanical knowledge, properly so called, it seems next to impossible to imagine a more complete absence of everything worthy the name. A little knowledge, a little study, might have given a degree of plausibility to the affair: like his countryman who detailed Sir J. W. Herschell's zoological researches in the moon, he should have tutored himself into the capability of giving an air of truth to the heartless hoax he has attempted: he should have taught himself the art of giving his revelations the appearance of being genuine.



My specimens of the work are not chosen on account of the superlative presumption which they display, for in this respect they do not stand out at all remarkably from the great mass of speculations contained in the two volumes, but they are, or profess to be, purely botanical, and therefore I select them for exhibition in a purely botanical magazine. Let us suppose the planets in question could really be visited by a botanist, and that the undertaking had fairly been accomplished; what should we say to any one who gave the result of his discoveries in such unintelligible jargon as this? "The fourth class [of plants] approximates still nearer to animal existence. Being more perfect in composition than the others, it presents a variegated foliage, the extracts from which enter essentially into the forms of the first animals." The veriest tyro in botany knows that the more perfect a plant the less it approximates to an animal; and that variegated foliage indicates disease rather than perfection; and how the extracts of variegated foliage enter into the form of the first animals I cannot conceive. In fact, the entire passage is neither more nor less than a number of words purposely jumbled together to mystify the reader, and perfectly incapable of conveying an idea to the mind of man. When I lately quoted, in another place, some of the choicest morceaux from Oken's twin publication, a champion, willing to exonerate the German, suggested that the English translator had mistaken his meaning,—a reasonable suggestion, for Mr. Tulk were gifted with superhuman powers could he understand the original: no such plea, however, can be adduced in the present instance; the volumes come before us in the language in which they were written; and however the transcendentalists or their abettors may wince, they cannot evade the fact, that the passages are quoted precisely as originally written, without abbreviation or alteration, and in every instance entire, and not piecemeal. Some two, hundred pages are occupied in what might be called travestied science, after the fashion exhibited above, in the passage about 'the extracts of variegated foliage entering essentially into animals;' as no portion of this is either botanical or logical, or can by any possibility be true or instructive, I pass it over in silence. Then from such premises comes the conclusion, thus ushered in!

"I now descend to the birth of *mythological theology*—which theology is at the present day obscuring the highest and purest principles of the internal nature of man, destroying all elements of true and natural morality, and absolutely driving men into every species of vice, folly, disunity of interests and consequent wretchedness."—i. 377.

A pleasant picture of Christianity indeed! a mythological theology

obscuring our purest principles, destroying morality, and driving us into every species of vice! Self-respect would have pointed out to any ingenuous and sincere author two postulates for the reception by thinking men of such a sweeping anathema against religion as this : *first*, the preceding argument should have led to the inference ; *secondly*, an appeal to the present state of the Christian world should have supported the assertion ; whereas this anathema against Christianity, placed in the middle of the book, and even cherished as its heart of hearts, neither follows from any passage that has preceded, nor is supported by anything that follows.

Andrew Jackson Davis, the clairvoyant, certainly never heard of such a science as logic, otherwise he assuredly would have seen that his premises do not induce his conclusions : it is very easy to write the assertion, that Christianity is a fable, and leads to vice ; but in this age there is what Mr. Davis would himself call a strong prejudice in favour of Christianity, and before giving up that prejudice at the beck of a juggling clairvoyant, we want logical proof of the soundness of his assertions : we refuse to take his *ipse dixit* on points where it is so self-evident that he has trusted to the resources of a fertile imagination, uncurbed by the reflective power required to preserve accordance between the component parts of his wondrous tale.

In order to carry out the deception, he should have made the parts consistent with the whole, and the means accessory to the end. As I wish to render myself intelligible to Mr. Davis's admirers, the latter position may be illustrated thus. Accomplished novellists (Mr. Davis *is* a novelist, though not accomplished in his craft), desirous of disposing of any of their heroes by death, employ certain means which would, if applied to the human body, cause death : I recollect Moore uses a tank of *aqua fortis* ; Dickens, an express train, &c. ; and if we turn over the pages of Shakspeare, swords, daggers, and poison, old age, and other obvious *causes of death* are introduced to cause death ; but our 'Poughkeepsie Seer' kills the Christian religion without even the flourish of a weapon more fatal than the extracts of variegated leaves, or the assertion that men in the planet Jupiter walk on all fours.

I have thought it right to relinquish the editorial *we*, and to avow myself the author of these observations. I am perfectly aware that different opinions are entertained on all subjects ; and Vestigianism, Okenism, mesmerism, form no exception ; these have their several advocates, of whom I am not one, and wish to announce that I am not ; but I claim for these remarks no fictitious importance on ac-

count of my editorial capacity: they are simply the opinions of an individual, and their weight and value must be in exact accordance with their justice and truth. I acknowledge I feel very strongly on the subject, and doubtless express myself strongly, but the occasion seems to require it; and I hope I have not exceeded the bounds of fair criticism in expressing my unqualified disapprobation of a work that I believe to be false in its assertions, false in its reasoning, and false in its conclusions.

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,  
May 16th, 1848.

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*Occurrence of Thlaspi perfoliatum near Cheltenham.*

By CHARLES PRENTICE, Esq.

ALLOW me to correct an error which I rather hastily inserted in the July number of the 'Phytologist,' 1847. *Thlaspi perfoliatum*, L., is there stated to be no longer found at Naunton Seven Springs, near Stow-on-the-Wold. I was too late for it last year, but being earlier this, I gathered several specimens of this very rare and interesting plant.

C. PRENTICE.

1, Oxford Place, Cheltenham,  
May 17th, 1848.

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*Notice of 'The Flora of Leicestershire, according to the Natural Orders; arranged from the London Catalogue of British Plants. Leicester: printed by John S. Crossly. 1848.'*

THE botany of Leicestershire was very imperfectly known before the Rev. Andrew Bloxam's publications on the subject,—originally by partial lists and localities in the 'Magazine of Natural History,' and eventually in the improved form of a general list for a portion of the county, given in Potter's 'History of Charnwood Forest,' about half a dozen years ago; additions and corrections having since been occasionally made to our knowledge of Leicestershire plants. We are not aware that Mr. Bloxam's general list was published apart from the quarto 'History;' so that the little work now before us, in 86 duodecimo pages, may be considered to fill a vacuum in the literature of local botany.

The 'Flora of Leicestershire' appears in form of an arranged cata-

logue of species, with their usual situations of growth, indications of frequency or rarity, and localities for the less common species. The text is printed only on the alternate pages; thus leaving the opposite pages blank, for "additions and memoranda,"—a good mode of printing a local list. The arrangement by natural orders is followed, and both arrangement and nomenclature are made to correspond with the 'London Catalogue of British Plants,' published for the Botanical Society. This course is a judicious one. Local lists should always be thrown into the natural arrangement; and their usefulness is always increased by correspondence with some well-known standard. Whatever difference of opinion may exist about species and varieties, about generic and specific names, in which no two of our general floras do correspond with each other, the wide circulation of the 'London Catalogue,'—the countless specimens distributed to herbaria, British and foreign, with labels corresponding to that Catalogue by their names and numbers,—the ease with which any moderately good botanist may certainly know and identify the species or variety intended by the nomenclature of the same Catalogue,—all strongly recommend its use as a standard, calculated to prevent misapprehension and error, through variations of nomenclature. Moreover, the 'Cybele Britannica' is arranged in close conformity with the 'London Catalogue,' and may be regarded as the generalized and condensed summary of all the local lists or floras; so that the adoption of the same arrangement must give increased value to any later published flora, by facilitating comparisons between the local and the general, the single and the aggregate, the details and the summaries.

Unfortunately, there are some omissions which detract from the usefulness and value of the 'Flora of Leicestershire,' and which it would be well for the author to supply, by giving the needful explanations in the pages of the 'Phytologist,' if it should be found now too late to add an explanatory sheet to the printed volume. We see, for instance, only the name of the printer, as above indicated, on the wrapper and title; and the public is thus left uninformed whether or not the work is a published one; and, if so, where and from whom it can be purchased. It must be almost needless to observe, that every published work ought to have the name of a London publisher on its title-page. The volume is anonymous, which no scientific work should be; and less than all should a work be published anonymously, which is simply a list or record of stated facts. As no authority is given with the localities enumerated for the rarer species, it remains doubtful whether they are set forth on the individual credit of the anony-

mous author, or whether they are quoted from other sources; and in either case they are at present without warranty for their truth in a scientific light. Further, certain signs are employed, as a note of interrogation following a specific name, and an asterisk prefixed to a locality; and as no explanation of their uses is given, they can convey no clear meaning to the reader.

These omissions are the more to be regretted, because, while the list of plants bears internal evidence of general accuracy, there are still some exceptions to this, which unavoidably lead to distrust. For instance, we find the maritime *Glaucium luteum* located on "Bardon hill, and other forest hills;" which appears a very unlikely habitat.\* "Subularia aquatica?" and "Myrrhis odorata?" are thus interrogatively enumerated in the list, without locality or any sort of remark in qualification or explanation. Localities are given for *Ænanthe pimpinelloides*; but probably *Æ. Lachenalii* of the 'London Catalogue' was intended, as the latter species has been wholly omitted, although certainly found in the county, and in various localities; while the true *Æ. pimpinelloides*, if found at all, must be quite a recent discovery.

If the author of the 'Flora of Leicestershire' will lay aside the anonymous mask, and give the necessary explanations on the points we have mentioned, the volume may then be safely recommended, as a serviceable contribution to the records and the literature of British botany.

C.

*Notes on Shropshire Rubi.* By the REV. W. A. LEIGHTON, B.A.,  
F.B.S. E. & L.

(Continued from page 76).

7. *R. corylifolius*, Sm. & Bab. Syn.

The plants which may be comprehended under this species, as defined in Bab. Syn., appear to arrange themselves into two groupes, which, from the peculiar colour of the barren stem, may be called the *green* groupe and the *dark purple* groupe. Each of these groupes contains two forms, so that four different varieties may be enumerated:  $\alpha$ . and  $\beta$ . being comprised in the green groupe,  $\gamma$ . and  $\delta$ . in the dark

\* I learn from the author that this is an error, and the name consequently must be erased. I am not, however, informed what plant was intended.—E. N.

purple one.  $\alpha$ . and  $\beta$ . have much of the aspect, generally speaking, of the suberect brambles;  $\gamma$ . partakes of the appearance of *R. discolor*, and  $\delta$ . approaches *R. cordifolius*. These varieties, although anastomosing with each other in one or other of their characters, are nevertheless capable of being clearly distinguished by others.

In the present incipient state of our knowledge of this genus, I shall venture to give to the student a detailed description of these varieties, although at the risk of being accounted tedious and guilty of vain repetitions. And I am the rather led to adopt this course from the difficulty there is very frequently in such a variable genus as the present, of clearly comprehending what is intended in the usual short characters, when considered apart from and without having the actual specimens under view.

#### \* GREEN GROUPE.

Var.  $\alpha$ . *sublustris*. Barren stem arching, nearly or quite round and glabrous, green, and slightly tinged with reddish purple; prickles uniform in size, moderately abundant, slender, much longer than their short base, somewhat scattered, generally straight, or nearly so, sometimes a little declinate, or even decurved, green, or if in the sun, reddish purple at the base, yellow at the point; leaves digitate, 5-nate, on stout petioles pubescent with close-pressed scattered white shining hairs, armed with short decurved not very numerous prickles; leaflets coriaceous, plane, terminal one on a rather long stalk, intermediate ones on short stalks not above  $\frac{1}{4}$ th the length of that of the terminal leaflet, lowermost quite sessile, overlapping the intermediate pair, dark bright green and nearly glabrous, or with only a few scattered hairs above, under side clothed with dense whitish shining hairs and a dense whitish velvety tomentum, veins prominent, hairy, midrib armed with a few weak hooked prickles; terminal leaflet rotundato-cordate, acuminate, coarsely but very sharply and unequally crenato-cuspidato-serrated, intermediate leaflets broadly ovato-oblong, lowermost rather small and oblong; stipules lanceolate, smooth or nearly so on both sides, hairy on the margins; flowering stem roundish, very slightly angular, with scattered whitish pubescence below, increasing upwards into a short dense hoary close-pressed tomentum; leaves 3-nate below, upper ones large and simple, often lobed, not continued to the extremity of the panicle; panicle compound,

leafy below, naked above, branches loose, ascending but spreading, more or less cymose, the extremity beyond the leaves dense and crowded, pubescent and hoary; the secondary branches densely tomentose and hoary. From the axils of the two lower leaves generally proceed long branches; prickles few, slender, straight, more or less declinate, those on the rachis chiefly confined to the upper portion of the internodes; the secondary branches destitute of prickles, or nearly so, those of the pedicels few, slender, small, scattered, straight and slightly declinate; sepals clothed on both sides with a dense white hoary tomentum, without prickles, broadly ovate, cuspidate, the point varying in length, strongly reflexed in fruit; petals white; fruit black.

HAB.—Hedges between Uffington and Atcham; also between Atcham and Preston Boats; near the Flash, and near Sutton Spa, all in the neighbourhood of Shrewsbury. Codsall Wood and Albrighton, near Shiffnall, all in Shropshire.

I base this variety on *R. affinis*,  $\gamma$ . of Fl. Shropshire, 226, which must be referred here as a synonym. Mr. Lees has communicated to me a specimen of *R. sublustis*, Lees in Steele's 'Hand-Book of Botany' (collected at Temple Langhern, Henwick, near Worcester), which, on the label attached, he identifies with *R. affinis*,  $\gamma$ . Fl. Shropshire. It seems generally referrible here; and as I am anxious to avoid the addition of new names in a genus already encumbered with names, I venture to adopt his name *sublustis* for this variety. *R. corylifolius*, gathered at Twycross, Leicestershire (No. 5, Bloxam's Fasciculus), ranges here also.

Mr. George Jordon, of Bewdley, has sent me a plant gathered by himself in the Shropshire part of Wyre Forest, which has the terminal leaflets of the barren stem excessively large and lobed, and sometimes with a distinct leaflet at the base, thus forming an approach to a 7-nate leaf. The panicle is full two feet long. This is, I presume, the *R. sublustis*  $\gamma$ . *grandifolius* of Lees in Steele's Hand-Book. From its general characters I should refer it to this variety, unless it be of sufficiently common occurrence to render it necessary to retain it as a distinct variety, when of course Mr. Lees' name *grandifolius* would be very characteristic. Like all the plants of the present variety, it has a most noble and beautiful appearance.

Var.  $\beta$ .——Barren stem arching, subangular, angles rounded, glabrous, more or less glaucous, green, and slightly tinged with reddish purple; prickles uniform in size, confined to

the angles; few, strong, springing from an extended base, which equals the length of the prickles, straight, slightly de-curved towards the points, reddish purple at the base, yellow at the point; leaves digitate, 5-nate, on stout petioles pubescent with close-pressed whitish shining hairs, armed with stout hooked prickles; leaflets coriaceous, plane, terminal one on a short stalk, intermediate on very short stalks, lowermost quite sessile, overlapping intermediate pair, which also overlap the terminal leaflet, dark bright green, with few scattered hairs above, underside clothed with whitish shining hairs and a dense thick almost woolly tomentum; veins prominent hairy and tomentose, midrib armed with a few hooked prickles; terminal leaflet cordato-ovate, acuminate, sharply and less coarsely but similarly serrated to the last ( $\alpha$ ), intermediate ones ovate, lowermost oblong, the proportion between the leaflets more uniform than in the last variety, in which the lowermost leaflets are comparatively very small. Stipules linear-lanceolate smooth except on the margins; flowering stem somewhat angular, with scattered whitish pubescence below, increasing upwards especially on the panicle into a short dense hoary close-pressed tomentum; leaves large, 3-nate; panicle consisting of two or three branches from the axils of the 3-nate leaves as long or longer than the internodes crowned with a small dense naked cyme of flowers, the extremity beyond the leaves conglomerated into a similar but much larger dense and crowded naked cyme, pubescent and hoary; prickles few, rather stout, straight and declinate, chiefly located on the upper portion of the internodes, the cymose extremity of the panicle being nearly destitute of prickles, or only with a few slender ones scattered here and there; sepals broadly ovate, cuspidate, clothed on both sides with dense white hoary pubescence and tomentum, reflexed in fruit, destitute of prickles; petals white; fruit black.

HAB.—Hedges near Shrewsbury.

This variety is based on a portion of the plants comprehended under the second form of *R. rhamnifolius* of Fl. Shropsh. 228.

I presume the plants noted under *R. corylifolius*, Obs. 3, in Bab. Syn., are referrible here.

#### \*\* DARK PURPLE GROUPE.

Var.  $\gamma$ . ——— Barren stem arching, angular, angles rounded,



nearly or quite glabrous, very glaucous, dark purple and green; prickles uniform, numerous, chiefly but not entirely on the angles, strong though slender in appearance, nearly or quite horizontal or at right angles to the stem, arising from a dilated base, shorter than their length, with minute stellate tufts of hairs, dark purple; leaves digitate, 5-nate, on rather shortish petioles pubescent with short close-pressed scattered hoary hairs, armed with stout, declinate, moderately decurved prickles; leaflets rather thin, slightly coriaceous, plane, terminal one on a moderately long stalk, intermediate on very short ones, lowermost quite sessile and overlapping the intermediate pair, dark dull green, nearly glabrous above, underside clothed with very short close-pressed whitish shining hairs and dense whitish tomentum, soft but scarcely velvety, veins prominent hairy, midrib with few very weakly prickles; terminal leaflet rotundato-ovate, acuminate, sharply and irregularly crenato-cuspidato-serrated, intermediate and lowermost oval though differing in size, dilated at the lower side; stipules hoary and hairy especially on the margins; flowering stem angular, growing in a zigzag way, with hoary pubescence increasing upwards into dense hoary tomentum; leaves 8-nate below, simple above, not continued to the extremity; panicle similar in general character to that of var.  $\beta$ . densely hoary, almost of a dusty appearance, with a few glands; prickles rather more numerous, very long and slender though strong, straight, declinate, those on the rachis chiefly but not exclusively located about the upper portion of the internodes and joints, scattered more over the whole internodes rather increasing in length upwards as far as the naked extremity of the panicle; the secondary branches and pedicels with slender long scattered declinate prickles; sepals clothed on both sides with dense white hoary tomentum, broadly ovate, cuspidate, strongly reflexed in fruit. A few glands may be detected on the outside and a weak prickle or two at the base; petals white and pink; fruit black.

HAB.—Hedges near Shrewsbury.

This variety is founded on a portion of the plants included under the second form of *R. rhamnifolius* of Fl. Shropsh. 228. The specimens of *R. corylifolius* given in the 'Fasciculus of Shropshire Rubi,' belong to this variety.

I venture to hazard the conjecture that this variety is the plant

represented in E. Bot. 827, and intended by Smith in E. Fl. ii. 409, and Fl. Br. ii. 542. Mr. Babington, who has seen the corylifolius specimen in the Smithian herbarium, must decide this point. If it be, the name *Smithii* would be an appropriate one for this variety.

Judging from an indifferent specimen from Mr. Lees, I incline to think that *R. sublustris*, *γ. cænosus* of Lees in Steele's Hand-Book is referrible to this variety. Its chief peculiarity appears to consist in an excess of hoariness which extends partially even to the barren stem. Mr. Lees' remark respecting it is, "this var. often appears as if dusted over with some farinaceous substance — indeed, 'white as a miller.'"

Var. *δ. intermedia*. Barren stem arching, angular, glabrous except a very few stellate tufts of hairs on the prickles, dark purple, slightly glaucous; prickles nearly uniform, very numerous, scattered, not confined to the angles, strong and very sharp, slender, horizontal, longer than the dilated base, dark purple; leaves digitate, 5-nate, large, on long stout petioles, slightly hoary, armed with numerous strong decurved stout prickles; leaflets thin, plane, terminal one on a moderately long stalk, intermediate pair on very short stalks, lowermost quite sessile and overlapping intermediate ones, dull dark green and glabrous on upper side, underside pale green, with soft scattered shining hairs, but destitute of tomentum, though with a good magnifier the incipient rudiments of tomentum may be discerned; veins very prominent, midrib armed with short stout decurved prickles; terminal leaflet rotundato-cordato-ovate, acuminate, very coarsely and irregularly crenato-cuspidato-serrated, intermediate ones broadly oblong, lowermost small in proportion, oval, both pairs dilated in their lower portion; stipules narrow, linear-lanceolate, margins hairy; flowering stem angular, zigzag, slightly hoary with minute stellate clusters of white hairs below, more so upwards, with a few scattered dark purple stipitate glands; leaves large, lower 3-nate, upper simple and large, not continued to the extremity; panicle composed of two or three elongated axillary branches, each bearing a small cymose head of flowers, the extremity with a large terminal cymose naked rather loose cluster of blossoms; secondary branches hoary and glandular; prickles numerous, strong, straight, declinate and slightly curved, those of the rachis most numerous and chiefly clustered on the upper portion of

each internode, decreasing in number and becoming scattered below, those of the secondary branches and pedicels smaller, similar in form and direction, tolerably numerous and scattered, with a few dark purple stipitate glands interspersed; sepals clothed on both sides with dense white tomentum, ovate, cuspidate, reflexed, with a stray gland or two, and a weak prickles or so at the base; petals ———; fruit black.

This variety comprehends the plants from Crowmerle, near Shrewsbury, included in *R. rhamnifolius*, second form, Fl. Shropsh. 228, and mentioned under *R. cordifolius*, Obs. 2, in Bab. Syn., and of which Esenbeck writes (*in lit.*) "*R. rhamnifolius*, *W. & N.*, se rapproche du *R. cordifolius* étant une variété de notre espèce que je tiens pour bonne espèce. *Aculei in vestris magis recti sunt, in nostratibus tantillum recurvi.*"

For the facility of comparison I subjoin the following brief distinctive characters of the four varieties above described.

*a. sublustris.* — Stem round, green; prickles slender, straight; leaves coriaceous, terminal one on long stalk, rotundato-cordate, coarsely crenato-cuspidato-serrated, whitish, tomentose, velvety beneath; flowering stem straightish, loose, cymose; prickles of rachis few, slender, declinate; secondary branches nearly without prickles.

*β.* — Stem subangular, green; prickles strong, straight, slightly decurved towards the points; leaves coriaceous, terminal one on short stalk, cordato-ovate, sharply less coarsely crenato-cuspidato-serrated, whitish, tomentose, woolly beneath; flowering stem straightish with a dense terminal cyme; prickles of rachis few, stout, declinate; cymose extremity nearly without prickles.

*γ. Smithii?* — Stem angular, dark purple; prickles strong, horizontal; leaves sub-coriaceous, terminal one on moderately long stalk, rotundato-ovate, finely crenato-cuspidato-serrated, whitish tomentose, soft, not velvety beneath, lowermost dilated in lower half; flowering stem zigzag, with dense, terminal cyme; prickles of rachis numerous, long, slender, declinate; cymose extremity prickly and glandular.

*δ. intermedia.* — Stem angular, dark purple; prickles strong, horizontal; leaves thin, terminal one on moderately long stalk, rotundato-cordato-ovate, coarsely crenato-cuspidato-serrated, pale green, hairy, soft beneath, lowermost dilated in lower half; flowering stem zigzag, lower branches elongated and spreading, with loose terminal cyme; prickles of rachis numerous, strong, horizontal or declinate; cymose extremity prickly and glandular.

The distinguishing marks of this species appear to be the sessile

overlapping lowermost pair of leaflets of the barren stem; the zigzag growth of the flowering stem; the panicle consisting generally of two or three elongated axillary branches, with a dense crowded terminal cymose extremity; the congregation of the prickles on the upper portion of the internodes of the rachis, and the peculiar appearance assumed by the flowers in consequence of the stamens and pistils becoming persistent after the fall of the petals, resulting from the fruit being very generally abortive or consisting only of two or three large grains.

[To be continued].

W. A. LEIGHTON.

Luciefelde, Shrewsbury,  
May, 17th, 1848.

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*List of Habitats of Plants recorded in MS. in a Copy of Blackstone's 'Specimen Botanicum.'* (Communicated by W. PAMPLIN, Esq.)

I SEND you the following extracted from an interleaved copy of Blackstone's 'Specimen Botanicum,' London, 1745. I think these old MS. records of localities of interesting plants are generally speaking acceptable to your readers, as it enables those who live in, or who may have the opportunity to visit, the neighbourhood indicated, to search for them, and many times too with good success, as I have often in years past proved to my no small delight: for instance, I well remember when I first noticed the *Geranium Robertianum* flore albo in the lane between Chiselhurst and Bromley, where it is recorded as growing in the time of Ray, and many other instances.

The accompanying habitats are inserted, neatly written, in an interleaved copy of Blackstone's 'Specimen Botanicum' in my possession. The volume formerly belonged to Stainsby Alchorne, Assay Master of the Mint, the friend and cotemporary of Hudson, Warner and Jacob; it is most probable that these notes are his own (Alchorne's).

*Alchemilla vulgaris.* In a wood just below Chesham Bois church, Bucks, 1752.

*Alsine palustris fol. tenuiss. (Spergula nodosa).* Uxbridge Moor, abundantly.

*Althæa officinalis.* By the Thames side, at the Isle of Dogs, just before you come to the ferry for Greenwich.

*Asplenium Ceterach*. On a wall at Riverhead, near Sevenoaks, Kent, 1748.

*Balsamine lutea* sen *Noli-me-tangere* (*Impatiens*). Near the rills of water in the grounds about Bath, particularly near Bathwick church.

*Bupleurum minimum* (*B. tenuissimum*). By the road-side at the foot of Shooter's Hill, sparingly, 1751.

*Campanula cymbulariæ foliis* (*C. hederacea*). In several bogs on St. Leonard's Forest, near Horsham, and about Crawley, in Sussex, abundantly, 1750.

*Campanula esculentæ facie ramis et floribus patulis*, Hort. Elth. (*C. patula*). In a wood called Ulberry Hill, about a mile from Worcester.

*Cardamine flore majore* (*C. amara*). By the river side behind the town, at Lewisham.

———— *impatiens*, Ger. Em. 260, fig. bona. By the ditch sides in Hell Brook, at Parson's Green, Middlesex, plentifully.

*Carduus stellatus* (*Centaurea calcitrapa*). By the road-side at Bethnall Green, and between Lewisham and Sydenham.

*Caryophyllus arvensis hirsutus flore majore* (*Cerastium arvense*?) By the Thames side, half a mile beyond Kingston, in the road to Cobham, plentifully. Mr. Cawte.

———— *minor*, &c. (*Dianthus deltoides*). On Dubbar's Hill, Croydon, plentifully, 1748.

*Chamædrys sativa sive vulgaris*. In a field facing the upper church-yard at Wandsworth.

*Cynoglossum minus folio virente* (*C. sylvaticum*). In Hatfield Park and thereabouts, very frequent, 1751; also near Chinckford by Woodford, &c. (This plant, which is not very general, I observed in plenty upon the hedge-banks at intervals all the way from Waltham Abbey, through Sewardstone and Chinckford this present May (1848). I remember to have seen it about twenty years ago also, very near into Walthamistow, but I think it has of late disappeared from there. —W. P.)

*Cyperus longus inodorus sylvestris*. On Hinton Moor, near Cambridge.

*Dryopteris*, Lob. Ic. 814 (*Asp. Thelypteris*). In the moist meadows at North Cray, Kent, plentifully.

*Eryngium Mediterraneum sive campestre*. On the coast about Crimhill passage, where is the ferry over from Plymouth to Mount Edgecombe, in Cornwall.

*Filipendula vulgaris offic.* Not far from the Plough, at Clapham Common.

*Filix saxatilis caule tenui fragili*, Raii Syn. edit. 2, p. 50, No. 7. Plentiful on Hampton cliffs, near Bath.

*Fumaria alba latifolia*, Park. In the hedges near Bonner's Row, Bethnal Green; and again between Greenwich Park Wall and Charlton Church.

*Geranium saxatile (G. lucidum)*. About Lexden, a mile before you enter Colchester from London.

*Graminifolia palustris repens*, Raii Syn. (*Pilularia*). On Enfield Chase, half a mile from the town towards Barnet. On a moorish ground a mile and a half before you come to Uxbridge, close to the right hand side of the road.

*Gramen cyperoides majus præcox*. In the wet part of Battersea Meadow.

————— *spicis parvis longissime distantibus*, Raii Syn. In a wood just below Chesham Bois Church, Bucks, plentifully, 1752.

————— *pratense paniculatum medium*. On the walls at Eltham leading to the old Palace.

*Helenium (Inula Helenium)*. By the chalk-pit at Gerards Cross, Bucks.

*Helianthemum vulgare petalis florum perangustis (H. surrejanum)*. By a chalk-pit on the right hand of the road between Eltham and Farningham, in Kent.

*Helleborine palustris (Epipactis palustris)*. Abundantly by the roadside a mile or two before you come to Hemel Hempstead from Watford, Herts.

*Herba Paris (Paris quadrifolia)*. In a wood near Henden beyond Hampstead. In a copse near Chiselhurst.

*Lentibularia (Utricularia vulgaris)*. In the green lane leading from Newington to Southgate, not far from the sluice which opens the New River into the New Cut.

*Lilium Convallium (Convallaria majalis)*. In Bishops Wood and the heath by Hampstead. (Still grows there in small quantity. —W. P.)

*Lychnis sylvestris flore albo minimo*. In a field near Weybridge Church, called Sadlers, plentifully in July, 1747.

————— *quæ Saponaria vulgo (Saponaria officinalis)*. Near Kingsland Turnpike.

*Medicago echinata minima*. Abundantly on the sandy ground within the beach below Sheerness; Mr. Rand, 1722; again in the

way from Sheerness to Minster, 1768. (It would be well to examine these localities again, for the plant being so small might be very easily overlooked, and it is not at all likely that a plant propagating itself so freely by seed would cease to exist there.—W. P.)

*Mentha piperita*. In the Green Lane to Southgate from Newington before you come to Hornsey Wood.

*Menthastrum spicatum folio longiore candicante*. By the rill of water at the roadside the beginning of Lewisham town; and again in the church-yard at Hornsey, on the north side.

*Myagro affinis planta siliquis longis*. In a field called Sadlers, near Weybridge Church; also near Esher Church.

*Myrrhis officinalis*. I gathered it in May, 1746, in Bocking church-yard, in Essex, where there is a good deal of it. They call this plant in Essex sweet fern.

*Myosurus*. On Epping Forest, between Woodford and Chingford.

*Ophioglossum vulgare*. In Hackney Marsh.

*Orchis Nidus Avis*. In a wood about one mile from Bromfield as you go to Springfield, Essex, sparingly, 1746.

—— *alba bifolia minor*. In Cane Wood, and on the heath by Hampstead.

*Orchis barbata odore Hirci brevior latioreque folio (O. hircina)*. We found it as we went up a lane on the left hand going down the town (Dartford) from London to the church, a little before you come to the church.

—— *odorata moschata sive Monorchis*. By the side of Madam's Court Hill, in the road to Tunbridge, and on the chalk hills between Rochester and Maidstone.

—— *sive Cynosorchis minor Pannonica (O. ustulata)*. In the chalk pit near Stanhill, Dartford, but not plentifully, 1746.

—— *spiralis alba odorata*. On Enfield chase, near the town, and by the road-side near the tenth mile-stone on Epping Forest, by the Bald Stag.

*Osmunda regalis*. On the low part of Hampstead Heath, and on Epping Forest, near Chingford, but in both places sparingly.

*Pimpinella saxifraga major umbella candida*. By the paper-mill just below the Abbey Church, St. Albans, also about Chesham, abundantly, 1748.

*Plantago aquatica minima Clusii (Limosella aquatica)*. In the Back lane to Southgate, before you come to the turning for Hornsey Wood.

—— *aquatica stellata (Alisma damasonium)*. By Larimer's

Pond, near Newington Butts, and on Putney Heath, also in the back lane to Southgate and on Epping Forest.

*Polypodium murale pinnulis serratis*. On Mount Edgecombe, behind a seat that commands a view of Plymouth Harbour.

*Prunus sylvestris major* (?). In the hedges near Buckingham.

*Rapunculus esculentus vulgaris*. About Esher, in Surrey, particularly as you go to Haversham (Hersham), plentifully.

*Reseda crispa gallica*, Boccone. Between Northfleet and Gravesend, and all over the Isle of Thanet; likewise near Guildford. N. B. The Reseda which grows on Tilbury Fort walls is the Reseda maxima of Casp. Bauhin.

*Rubus Idæus*. In several woods about Chesham, Bucks, plentifully, 1753.

*Saxifraga alba radice granulosa*. In St. George his fields, near London, and in Battersea meadows.

*Serpyllum citratum*. Ger. Em. 571. On Oliver's Mount, nigh Uxbridge, not plentifully, 1746.

*Sium arvense sive Segetum*. In the hedges nigh Chinckford church, Essex, plentifully (and grows there to this day, as I have proved this present May, 1848.—W. P.)

*Solanum lethale* (*Atropa Belladonna*). In the old chalk pit at Gerard's Cross, 1746; and in Hatfield Park, Herts, 1751, plentifully.

*Sonchus tricubitalis folio cuspidato*. By the Thames' side below Greenwich Hospital.

*Stachys folio densiore candicante serrato et acuto major*. By the road-side about Whitney, in the way from Oxford to Burford.

*Turritis vulgarior*. By the road-side just above Redhill, beyond Uxbridge, plentifully, 1746; also between Lewisham and Bromley.

[To be continued].

WILLIAM PAMPLIN.

Notice of 'The Physical Atlas, a Series of Maps illustrating the Geographical Distribution of Natural Phenomena. By HENRY BERGHAUS, LL.D., and ALEXANDER KEITH JOHNSTON, F.R.G.S. Edinburgh: Johnston. London: Saunders. Glasgow: Lumsden.'

THIS elaborate work is now complete in ten numbers, and conveys to the mind a greater quantity of information than could be gained in any manner equally expeditious. As a glance at a map gives a



more complete and correct idea of the figure of a continent or island than could be expressed in words, so do these maps of facts give a more complete insight into physical phenomena than could be gained by any amount of reading. Where the body of facts is so immense, and the description of information so diversified, it follows almost as a matter of course that errors should occasionally creep in and omissions now and then occur. A few such we think we could point out, but we notice this simply for the sake of asserting that a careful and critical examination of several of the maps in detail has convinced us that the greatest care has been taken in making them correct and complete: and we have great pleasure in pronouncing the 'Physical Atlas' an invaluable boon to the man of science; and in recommending it most cordially to the readers of the 'Phytologist.'

At the present moment, when clairvoyance, hypothetical floras, physiophilosophy, and vestigianism have induced many of our younger and weaker-minded botanists to crave rather for fictitious than real wonders—when a kind of diluted philosophy, a loose and vague generalization has been partially adopted as an easy substitute for scientific proficiency,—it is most delightful and refreshing to meet with a work in which truth takes its proper station, and in which no kind of quackery is allowed to mingle. We quote the prospectus in order to give a better idea of the undertaking than any description we could draw up for the occasion, and we advisedly pronounce that the work itself fully bears out all that the publishers say in its favour.

"For imparting information, or for retaining what may already be possessed, those means are calculated to be most successful which readily commend themselves to the eye. Hence ordinary Geographical Maps convey more rapid and accurate knowledge regarding the positions of places, and their relative distances from each other, than can be done by the most elaborate verbal description; but the inventive genius of Professor Berghaus has imparted a significance to symbolical representation, transcending all the anticipations which have been formed regarding the capabilities of the art. The contents of the many volumes which formerly were the sole depositories of information regarding the different kingdoms of nature, have been condensed and reproduced in a graphic shape, in his Physical Atlas, with a conciseness, precision, completeness, and promptitude of expression altogether unattainable by any agency previously employed. And not only has this been the case in the reproduction of the reading matter contained in books, but the process has been extended to the transmutation of

the masses of statistical data expressed in the Tabular enumerations of works of reference. The elegant substitute of Linear Delineation registers the most complicated results in a perspicuous form, and affords inexhaustible facilities for recording the continued advances of science. In the emphatic language of the late President of the Royal Geographical Society, 'Professor Berghaus has made the progress of science visible'—he has mapped out the length and breadth of philosophical research, and shown what it has done, and what it has left undone, in expounding the physical constitution of the Globe.

"The Physical Atlas has been the labour of many years; and in addition to scientific qualifications of the highest order, and an intimate acquaintance with the writings and discoveries of Brewster, Sabine, Jameson, Whewell, Greenough, Humboldt, Von Buch, Arago, and other distinguished names in modern research, Professor Berghaus has had facilities for the accurate and extensive execution of the undertaking beyond what any other individual could be expected to possess. Geography forms a part of the course of education to all persons preparing for public service in Prussia; and with that sedulous attention to the cultivation of physical philosophy, which characterizes the German mind, the whole of the military force and mercantile marine of the Prussian Government are expected to report minutely on the geographical condition of every country which they visit; and from his position as Principal of the National Geographical Institute, the most valuable reports and surveys have been made under the special direction of Professor Berghaus, and with reference to the completion of his arduous task.

"In the 'National Atlas,' Mr. Johnston presented the British public with some specimens of this meritorious work, which had the effect of eliciting earnest requests from members of the Geographical Society, and other learned bodies, to publish an English edition of the whole; and in compliance with their wishes, this important publication is now about to be commenced. The documents, which will be found in another part of this prospectus, will evince the interest excited by the work, as well as authoritatively indicate the superior manner in which the present edition will be produced.

"A liberal selection from the designs and copious MS. and letter-press descriptions of Professor Berghaus will constitute the basis of the new Atlas—a copyright arrangement having been made with him for the purpose; but instead of being a reprint from the original plates, the Maps will not only be larger in size, and more complete, but will contain the latest corrections from his own hand; and in addition to

this, Maps on subjects not treated of by Professor Berghaus will be constructed by Mr. Johnston, under the superintendence of competent writers, in order that the whole may be in unison with the state of science in Britain up to the period of publication.

"No theories founded on mere hypothesis will be introduced. All the Maps, so far as can be ascertained, will embody the results of actual observation and experiment. Indeed, the plan of linear delineation provides, to some extent, a guarantee against crude speculation, as it compels all systems to assume a definite shape, readily susceptible of direct examination as separate truths, or relatively, as they are in consonance with cosmical laws universally admitted. There will, however, be introduced on all suitable occasions, such inductive data as seem to point at the solution of unexplained phenomena—a course, which, it is presumed, is not beyond the proper sphere of the work, and which may not be unattended with advantage to scientific inquiry.

"But the predominating rule, both in the selection and treatment of subjects, will be *utility*, in the widest sense of the term. The projectors do not wish to deal with science for abstract purposes; they wish to deal with it as developing the resources of Nature, and as guiding art in adapting these to the exigencies of Man. They, therefore, solicit attention to this Atlas, as a repertory of ascertained facts and principles, bearing directly on many of the most important departments of human occupation. To the political economist, man of letters, merchant, manufacturer, navigator, and tradesman, the work will be of great practical advantage; while to the professor and teacher it cannot fail to be of inestimable service, in materially facilitating the important business of education."

K.

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*Notes on Shropshire Rubi.* By the REV. W. A. LEIGHTON, B.A.,  
F.B.S. E. & L.

(Continued from page 166).

8. *R. cordifolius*, W. & N.

The specimens of the 'Fasciculus of Shropshire Rubi' belong to the typical or cordate form of this species, as defined in Bab. Syn. and Manual.

*R. affinis*,  $\beta$ . Fl. Shropsh. 226, is the ovate or rhampifolius form.

*R. rhamnifolius*, first form of that work, p. 227, is (in part) the cordate or typical form.

No. 7 of Bloxam's *Fasciculus* is identical with the plant given in the '*Fasciculus of Shropshire Rubi*;' so also is a plant communicated to me by Mr. Lees, gathered in "thickets in Birchin Grove, Broadheath, two miles west of Worcester," and which I suppose is the *R. cordifolius* of Lees in Steele's *Hand-Book*.

The distinctly stalked lower leaflets, which never overlap the intermediate pair, and which spread or are turned backward considerably, the stout red-coloured very angular and furrowed stem, with its very strong straight horizontal or declinate prickles, readily distinguish this from *R. corylifolius*; whilst the different cordate shape and toothing of the leaves and the scattered straight declinate prickles of the flowering stem, combined with its different panicle, separate it from *R. affinis*.

9. *R. discolor*, W. & N.

The *R. discolor* and *R. fruticosus* of Fl. Shropsh. p. 228 and 229 prove, as there conjectured, to be forms only of the same species.

The leaves of this species, which are indefinitely variable in shape, afford no good characters whereby to determine the varieties observed in Shropshire, whose distinctions may rather be grounded on the clothing of the barren stem, the shape and direction of its prickles, and the clothing and armature of the panicle and flowering stem.

Var.  $\alpha$ . — Barren stem covered with minute stellate clusters of silky hairs, prickles confined to the angles, large, stout, very dilated at the base, straight and declinate, or curved and deflexed, clothed similarly to the stem; panicle white, tomentose and with long spreading hairs, prickles strong, tolerably abundant, decurved, silky with minute stellate clusters of hairs.

"No. 9, *R. fruticosus*" of Bloxam's *Fascic. Rub.* ranges here.

Var.  $\beta$ . — Barren stem nearly glabrous and glaucous, prickles large, stout, horizontal, straight; panicle white tomentose and much more hairy than in  $\alpha$ ., prickles straight and declinate or deflexed.

The specimens in the '*Fasciculus of Shropshire Rubi*' belong to one or other of the above varieties.

Var.  $\gamma$ . — Barren stem with scattered weak spreading hairs, prickles very numerous, decurved, or straight and declinate; panicle white tomentose and very hairy, hairs long and patent, prickles declinate and decurved.

I here arrange "No. 11, *R. macroacanthus*, *W. & N.*, *γ. macroacanthus*, Bab. Syn., between Mancetter and Hartshill, Warwickshire," of Bloxam's Fascic. Rub.

Var. *δ. argenteus*. Barren stem with minute close-pressed silky shining hairs, prickles moderately strong from a broad base, subulate, straight, with stellate hairs; leaves cordato-ovate, with a long acuminate point, sharply finely and unequally serrated, glabrous above, white tomentose velvety beneath; panicle very tomentose and hairy, hairs short, prickles straight and declinate, long and slender.

Specimens of this variety are given in the 'Fasciculus of Shropshire Rubi.'

"No. 10, *R. discolor*, *lividus*, Bab. MSS., near Twycross, Leicestershire," of Bloxam's Fascic. Rub. has the barren stem angular, furrowed and glabrous, prickles with a very large dilated base, suddenly and peculiarly uncinatate; leaves large, terminal leaflet broadly oval acuminate doubly and coarsely serrated, glabrous above, white tomentose beneath; panicle with weak, straggling hairs below, tomentose and very hairy above, prickles very strong and uncinatate. This seems so very different from any of the other forms that it surely ought to be recognized as a distinct variety.

10. *R. leucostachys*, Sm. & Bab. Syn.

The species so named in the Fl. Shropsh. p. 230, seems to be a sad jumble, having, according to the authentic specimens now before me, been founded on two specimens named by Prof. Lindley *R. leucostachys*, but evidently referrible to *R. nitidus*, Bab. Syn., and one specimen identical with *R. leucostachys*, *β. vestitus*. I am not at present acquainted with any Shropshire plant corresponding with the true *leucostachys*.

*R. leucostachys* of Lees in Steele's Hand-Book is, according to specimens from Mr. Lees, identical with *R. nitidus* of Bab. Syn. and the 'Fasciculus of Shropshire Rubi.'

Var. *β. vestitus*, *Bell Salt*.

Specimens of this are given in the 'Fasciculus of Shropshire Rubi.' It is the *R. villicaulis* of Fl. Shropsh. p. 231, so named by Esenbeck. To the other characters by which this well-marked and not uncommon plant may be recognized I would add the following:—

On the flowering stem and panicle the prickles, which are straight and declinate, arising from a stout dilated purple base, frequently hairy, and elongated into a long slender yellow point, are very noticeable from their shining and polished aspect as well as their colour,

and are rendered more conspicuous by their issuing from the dense shaggy tawny white tomentum and hairs. They are also set on in a succession of irregular series; a series being comprised on each internode or division of the panicle: in the lower portion of which the prickles are shorter and smaller, but increase in size and length upwards to the next node or joint where they are longest, the longest prickle being not unfrequently located immediately opposite to the point from which the petiole of the leaf springs.

"No. 13 of Bloxam's Fascic. Rub., *R. vestitus*," agrees with our Shropshire plant, as does also Mr. Lees' *R. vestitus* in Steele's Hand-Book, according to specimens from him.

Var. *γ. argenteus*, *Bell Salt*.

Specimens gathered near Cophthorn, near Shrewsbury (some of which are given in some of the copies of the 'Fasciculus of Shropshire Rubi' as *β. vestitus*), have altogether a whiter softer closer-pressed tomentose appearance, with a looser and larger extra-foliateous panicle, the lower axillary branches of which are elongated, and the leaves are narrowed at the base, becoming in general shape rotundato-obovate, with less coarsely dentate margins. These, I presume, may constitute *γ. argenteus* of Bab. Syn. It should, however, be mentioned that I noticed that on the same bushes the usual form of *β. vestitus* was recognizable, and gradations from that variety into the present one were easily traceable. The prickles on the flowering stem and panicle are not rigidly straight and declinate as in *β. vestitus*, but curved and deflexed, though in similar, but more irregular series.

11. *R. Leightonianus*, Bab. Syn.

This plant, which is fully and accurately described by my friend Mr. Babington in his Syn. Rub., and which he was kind enough to name in honour of me, is destined to be degraded from that enviable post by my own hands, as the following observations will clearly prove that it has no claims whatever to rank as a distinct species, and cannot be retained even as a variety.

Having no authentic specimen in my herbarium of the plant gathered by Mr. Babington and myself at Haughmond Hill in September, 1837, I was for a long time completely ignorant of what plant was really intended. Never suspecting *leucostachys*, *β. vestitus* to be identical with it, I year after year searched Haughmond Hill unsuccessfully, and without finding any bramble which I could confidently say corresponded with the description in Bab. Syn. In 1847 Mr. Babington sent to me a specimen of what he considered *R.*

Leightonianus of his Synopsis, collected by himself "near Lyston, Llanwarne, Herefordshire, Sept. 14, 1847." The first glance excited recollections as of an old acquaintance, and I could not divest myself of the idea that it looked exceedingly like a very green state of *leucostachys*,  $\beta$ . *vestitus*. Soon afterwards, botanizing on the Wrekin mountain, in this county, I found in the moist shady woods at its base, near a little brook which runs between the Wrekin and Lawrence Hill, a weakly plant in some abundance, which appeared identical with the Herefordshire specimen sent as *R. Leightonianus* by Mr. Babington. I accordingly gathered specimens, and forwarded them to him, with expressions of my belief as to their identity with his *R. Leightonianus*, and of my conjectures that they were also identical with *R. leucostachys*,  $\beta$ . *vestitus*. Mr. B. confirmed their identity with *R. Leightonianus*, but met my difficulty as to their identity with *leucostachys*,  $\beta$ . *vestitus*, by the following note from his interleaved copy of his Syn. Rub., showing that similar doubts had at some time arisen in his own mind and been by investigation disposed of:—"R. Leightonianus is very like some states of *R. leucostachys*,  $\beta$ ., but differs by having unequal and scattered prickles on its barren stem, and the prickles on the petioles and midribs nearly or quite straight and slender, not strong and much hooked, as in that plant." This explanation did not, however, satisfy my mind nor remove my uncertainty, and so I set to work again. In the Weir Coppice, near Hookagate in the vicinity of Shrewsbury, *R. leucostachys*,  $\beta$ . *vestitus*, grows in some plenty, and I there set about to study the living plant. I soon found that on the main barren stem the prickles were in the upper and middle portion chiefly confined to the angles and equal in size, but on examining the lower part, the prickles were seen to be very unequal in size and scattered on all sides. Similar characters were noticed in the prickles on a strong lateral shoot which had been sent off from a main barren stem in consequence of the latter having been broken off early in the season. The prickles on the petioles and midribs seemed also very variable in form, ranging from nearly or quite straight to a hooked form, even on the same bush. The plant assumed a more or less green aspect as it was more or less in shade. Of all these variations I forwarded scraps for the consideration of Mr. B., and a day or so afterwards I posted off again to the Wrekin and spent several hours in tracing the gradations of the plant. In sunny and exposed situations *R. leucostachys*,  $\beta$ . *vestitus*, occurred of its usual size and of its commonly described aspect and character; but in the moist shady woods at the base of the hill it put on the *R. Leightonianus* or green

form, the whole plant weak, the prickles unequally scattered and slightly declinate, the leaves larger and rounder, thin and green on both sides. On ascending higher up the hill, still in the shady woods, but in a drier soil, the plant was in an intermediate state, rather stronger, but partaking much of the character and aspect of the *Leightonianus* form; whilst the under surface of the leaves, especially on the flowering stem, had acquired a whiter look, the prickles were confined to the angles, and those on the petioles more curved. On reaching, however, situations fully exposed to the sun, and uninfluenced by moisture or the shade of trees, the plant became truly *leucostachys*, *β. vestitus*.

The variations in the number and situation of the prickles on the barren stem, as noticed in the Weir Coppice, were here also confirmed.

These results quite convinced me, and I communicated them and my consequent convictions to Mr. Babington, who, after weighing them, coincided in thinking that *R. Leightonianus* could no longer be retained, but must be regarded as a state only of *leucostachys*, *β. vestitus*.

The above details are not inserted here with any view to vaunt my own keenness of sight and comparison,—still less with any wish or intention to depreciate the botanical accuracy of my justly valued friend Babington, or to expose the error into which he has inadvertently fallen;—but solely as hints to students of the caution required in investigating this variable and difficult genus, by showing the necessity of careful and long-continued study, not only of dried specimens, but of the characters and habits of the living plants in their native localities and in different situations, soils, and circumstances;—as well as to point out the links, trivial in themselves, but by gathering up and connecting which, the truth may be ultimately arrived at.

Specimens of *R. Leightonianus* from the Wrekin are comprised in the Fascic. Shropsh. Rubi.

[To be continued].

W. A. LEIGHTON.

Luciefelde, Shrewsbury,  
June 1st, 1848.

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*Note\* on the 'Flora of Leicestershire,' with Addenda thereto.*

By MISS M. KIRBY.

YOUR correspondent is evidently unacquainted with the character and design of the 'Flora of Leicestershire.' The work, which is not a published one, is simply preparatory, and has been printed for local convenience. No botanist can be expected to furnish the author with a complete list of all the plants, common or rare, that have come under his observation; but with an arranged catalogue, and a blank page before him, it is easy to insert the results of his investigations. Copies of the Flora may be obtained of Crossley, Leicester, and have been forwarded to botanists in the county, with the name and address of the compiler, together with a personal appeal for assistance! should such be afforded, much valuable information will be gained; the catalogue thus augmented will eventually be published, and "authorities given with the localities enumerated for the rarer species." The use of the asterisk is explained by a note at the foot of page 4, and refers throughout to Crabbe's 'Natural History of the Vale of Belvoir.' The note of interrogation speaks for itself, expressing doubt and a wish to obtain further evidence. *Sedum album*, *Rosa rubiginosa*, and *Rumex pratensis*, three plants thus introduced, have already had localities assigned them. The mistake of *Œnanthe pimpinelloides* for *Œ. Lachenalii* was occasioned by an accidental reference to a previous edition of the 'London Catalogue,' in which *Œ. Lachenalii* is not to be found. The error of *Glaucium luteum* was erased as soon as discovered. It is feared that *Cardamine impatiens* must also disappear from the list; Oldbury is unfortunately in Warwickshire, the locality near Ashby de la Zouch will probably prove to be in Derbyshire, and the plant has become extinct upon Bardon Hill.

It may be interesting to give a few addenda.

*Hesperis matronalis.*

*Geranium robertianum*, var. *album*.

*Potentilla Comarum.*

*Rubus sylvaticus.*

— *Babingtonii*, var. *Bloxamii*.

— *radula*, var. *Hystrix*.

— *glandulosus*, var. *rotundifolius*.

*Galium palustre*, var. *Witheringii*.

*Iris pumila*.—Apparently indigenous in Charley Meadows.

*Potamogeton zosteraceus*.

*Carex fulva*.

*Phalaris Canariensis.*

*Aira cristata.*

*Pilularia globulifera.*

M. KIRBY.

Friar Lane, Leicester,

June 9th, 1848.

*Note on Raising Cowslips (Primula veris) from Seed.*

By WILLIAM GODLEY, Esq.

HAVING raised some of the common cowslip from seed, I read Mr. Watson's report of experiments (Phytol. iii. 146) with a good deal of interest. The following is a report of my own experiment.

In the summer of 1846 I collected some seed of the common cowslip in a pasture near this town, and so situated that I considered the probability of hybridization (if such does really affect the seed) to be exceedingly small. In the spring of 1847 the seed was sown, and thirty-six seedlings were produced, which were planted out in a border having an east aspect. This year (1848) thirty-five of the seedlings have flowered, and I am unable to discover in the leaves, calyx, or corolla, any the least departure from the ordinary form of *Primula veris*.

WILLIAM GODLEY.

Wallingford, June 8, 1848.

*Note on Raising Jacquin's Primula (Primula Jacquinii), commonly called the Bardfield Oxlip, from Seed.* By EDWARD NEWMAN.

HAVING been favoured by Mr. Doubleday with specimens of this interesting plant, I planted them without any unusual precaution in a border with roots of the common primrose, cowslip, double pink primrose, and polyanthus. The Bardfield plant flowered and seeded freely, and numerous seedlings were produced. This spring eight of the seedlings have flowered, and to use the words of Mr. Godley, "I am unable to discover in the leaves, calyx, or corolla, the least departure from the ordinary form of" *Primula Jacquinii*.

In this instance it will be observed there was a great facility offered for hybridization by insects, &c., owing to the propinquity of other species or varieties simultaneously blooming in the immediate vicinity: so little care was exercised that had the result been remarkable for

an opposite tendency, *i. e.* to the production of dissimilar forms, I could not even have asserted from which parent the seeds actually fell : and I could only decide positively on the parentage when I saw the flower.

A word on hybrids. It is asserted by zoologists that a true hybrid or mule, for instance, that between the horse and ass, is sterile as a natural consequence of its hybridity. Without expressing any opinion as to the validity of this conclusion, I may unhesitatingly assert that its converse obtains in plants. No two species of a genus are normally more distinct than *Fuchsia coccinea* and *F. fulgens* ; yet a great proportion of our most beautiful varieties are obtained from hybrids between these two, the hybrids themselves being equally productive with the parents. It may possibly be suggested that this well-known fact induces the conclusion, that the two parents are but varieties of one species : but if so, how are we to define a species ?—the form, habit, and colour of foliage and inflorescence, being supposed to indicate no higher division than that of variety. I must acknowledge that I incline to discard the sterility test of hybrids in plants, and to conclude that nature has herself set up a law of her own, which, when left perfectly to herself, she invariably enforces. I am not aware that the hybrid oxlip (*Primula elatior*) is of usual occurrence in perfectly uncultivated districts. In woods the primrose, and in old meadows the cowslip and Jacquin's *Primula*, generally retain their characters with great precision ; and the occurrence of the hybrid in its usual localities of orchards, garden-hedges, &c., seems to me to point to two conclusions : *first*, that the presence of man in this, as in manifold instances besides, interferes with the ordinary course of nature ; and *secondly*, that the sterility test assumed and partially proved in *animals* is not available to prove the distinctness of species in *plants*.

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,  
June 9th, 1848.

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*Note on the British Rubi.* By the Rev. ANDREW BLOXAM, M.A.

I AM glad to see a resumption in the June No. of the 'Phytologist' of Mr. Leighton's valuable notes on the British Rubi, and regret that the whole have not been published earlier, that they might be available to the investigators of this difficult genus during the present season. Having sent a very large supply of specimens of different species of

Rubi to the London Botanical Society, collected last year, and which have now been distributed among the various members of the Society, I would take the liberty of suggesting to those who are becoming acquainted with the various forms, to notice especially the times of flowering of the different species met with in their own neighbourhood. The concurrent testimony of numerous observers upon this point will tend much to the elucidation of doubts as regards species or varieties. In my own neighbourhood, where the Rubi are very abundant (the following species growing within 100 yards of my house, viz., *R. Idæus*, *nitidus*, *corylifolius*, *carpinifolius*, *amplificatus* (*Lees*), *sylvaticus*, *discolor*, *fruticosus* (*E. B.*), *discolor*,  $\beta$ . *thyrsoides* (*Bab. Syn.*), *radula*, *Kœhleri*, *nemorosus* (*Hayne*), I find that *R. plicatus* and *corylifolius* (*sublustris*, *Lees*), are always the first in flower, generally the last week in May, and this from the observation of some years. *R. nemorosus* (*Hayne*), generally appears next; other species follow in succession, some earlier, some later. *R. discolor* (*R. fruticosus*, *E. B.*) generally flowers and fruits last of all, and from this circumstance and the different mode of growth which it exhibits from *R. discolor*,  $\beta$ . *thyrsoides* (*Bab. Syn.*), I am strongly inclined to believe that the two are distinct as species. The latter is always a much earlier bramble, of a more straggling and less bushy-like appearance; both are abundant in this neighbourhood, and therefore afford good opportunities for observation. The shape, size, and torus of the primordial fruit should also be observed, as well as the scales at the base of the flowering shoot, as some of these may probably afford permanent marks of distinction. The fruit of some species differs very materially in size and flavour from that of others; the year 1846 was very productive in fruit, and that of *radula*, when grown in hedges well exposed to the sun, and a *Rubus* which I believe to be a form of *sylvaticus*, were particularly fine and well flavoured. Several jars of the fruit of these two species were preserved by me, and when mixed up with other preserves they gave a most delicious flavour to the whole. It is probably well known to many of your readers, that the fruit of the Rubi, whether preserved or otherwise, is peculiarly useful in complaints of gravel, &c.

In procuring specimens, a stout pair of gloves and scissors are the best implements for the purpose, the latter being far superior to the knife; and as few vasculums are sufficiently large to hold many specimens, I have always found that a portfolio or couple of Bristol boards, with a few sheets of any kind of paper to divide the separate species, are most convenient.

Characteristic specimens should be collected, and a portion of the barren stem, with its 5-nate or 8-nate leaf taken anywhere near the middle, should always be gathered with the flowering one; care should also be taken when several Rubi are growing intermixed with each other not to confound the barren stems of one species with the flowering ones of another; this was occasionally done by myself when I first commenced, under the tuition of my friend Mr. Lees, the study of this difficult genus, and more than once I sorely puzzled my friend Mr. Babington with the fruits of my carelessness and inattention.

A. BLOXAM.

Twycross, Atherstone, June, 1848.

*Occurrence of Botrychium lunaria near Twycross.*

By the Rev. ANDREW BLOXAM, M. A.

It may not be uninteresting to observe that a botanist may almost every year be finding something new in his neighbourhood; for instance, I have lived in my present abode for ten years, and not until the present one have I discovered *Botrychium lunaria* (and there has been only one recorded locality for it as yet in the whole of Leicestershire). I have now three different localities for it in this parish, one where it grows not unsparingly, and that in a field within a hundred yards of my house. Strange that I should have overlooked it so long before!

A. BLOXAM.

Twycross, Atherstone, June, 1848.

*Notice of 'Contributions towards A Catalogue of Plants indigenous to the Neighbourhood of Tenby. London: Longman & Co. 1848.'*

LOCAL catalogues for any part of Britain are valuable, provided their correctness may be relied upon; and additions to the few and incomplete lists for Wales are more particularly needed. Accordingly, we hail this publication with pleasure; although probably it is far from being a full list of the flowering species to be met with about Tenby. Though extended to fifty pages, the work is simply a list of species, arranged in natural orders, with indications of frequency, and mention of very few localities for the less common. Judging from the

internal evidence, the author of the work has enjoyed few opportunities for examining the botany of the tract which he has undertaken to illustrate, or else he is too partially familiar with plants to have been able to identify all the species. Some very common species are wholly omitted, few or none of which can readily be supposed absentees from the vicinity of Tenby; for example, *Ranunculus acris*, *Papaver dubium*, *Cardamine hirsuta*, *Stellaria graminea*, *Stellaria holostea*, *Cerastium triviale*, *Trifolium procumbens*, &c., &c. And many others are inserted on the authority of Mr. T. B. Flower, as "noticed during a short visit made to Tenby in 1847," which seems to justify an inference that these also had escaped the notice of the author of the work, common as they are known to be in other parts of England and Wales, and we can scarcely suppose them uncommon about Tenby; examples occur in *Sagina procumbens*, *Arenaria serpyllifolia*, *Potentilla fragariastrum*, *Angelica sylvestris*, *Heracleum Sphondylium*, *Daucus Carota*, *Scabiosa succisa*, *Lapsana communis*, *Stachys sylvatica*, *Euphorbia Peplus*, *Holcus lanatus*, &c., &c.

From this internal evidence, it may readily be presumed that the title of the work is literally true; and that it must be received only as a contribution *towards* a catalogue of Tenby plants. We suppose it to be from the hand of Dr. Randle Wilbraham Falconer, the Preface being subscribed by the initials "R. W. F.," and dated at Tenby. But the name of the author is omitted on the title-page, and the publication consequently is anonymous, however transparently so. We could wish this were otherwise, and cannot at all understand the motive which prompts an author to print scientific facts anonymously, and thus greatly to lessen their value, through the uncertainty or even distrust which will of course attach to unacknowledged statements of fact. In looking through the list of species, we have not detected any improbabilities, and therefore conclude it to be credit-worthy so far as it goes.

C.

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*Notice of the 'Flora Hertfordiensis: being A Catalogue of Plants known, or reported, to grow wild, in the county of Hertford, with the Stations of the Rarer Species.* By the Rev. R. H. WEBB, Rector of Essendon; assisted by the Rev. H. COLEMAN, and by various Correspondents. Pamplin, London. 1848. Part I.'

THIS Flora has been long looked for; and it comes at length in an

elaborated form which places it much in advance of all its predecessors. The First Part includes only the order Ranunculaceæ of the Flora, treated in full; but a map of the county, and forty pages of valuable introductory matter, are prefixed; and these we can strongly recommend to the attention and imitation of those botanists who may be sufficiently zealous in the cause of science, to give the requisite time and thought to the working out of a Flora on a complete and scientifically serviceable plan.

The map of the county is distinguished by colours into three principal *Divisions*, those of the rivers Lea, Colne, and Ouse; the latter being comparatively a small portion of the county, bordering on the shires of Cambridge and Bedford. These three chief divisions are subdivided into twelve minor *Districts*. The county in general, the divisions, and the subordinate districts are carefully and well described, in reference to their physical geography, by the Rev. W. H. Coleman; and the number of species ascertained to occur in each division and district, is set forth in the description. There is likewise a list of all the species which have not been ascertained to occur in every one of the twelve districts, arranged in a tabular form, with a line of Nos. and blanks opposite the name of each species; thus showing at a glance within which of the twelve districts each respective species has hitherto been found, as also those from which it is still a desideratum. This tabular list is a particularly valuable addition to the work. Signs are employed to distinguish the "scarcely naturalized" (\*) and the "probably introduced species" (†) from the rest. The Introduction is wound up by two pages of smartly penned, but quite good-humoured, semi-satirical lines, appropriately in place; having been addressed to the authors, by way of remonstrance on their delay in bringing out the promised publication. The following paragraph, taken from the first page of the work, will afford some additional explanations; and fully can we sympathize with Mr. Webb's regrets at losing any portion of the valuable aid which his coadjutor, Mr. Coleman, is so very competent to give.

"So many circumstances," writes the Rev. R. H. Webb, "unforeseen and inevitable, have occurred to delay the publication of the following little work on the Wild Plants of Hertfordshire, that, probably, many persons who took a lively interest in its first announcement, have, ere this, despaired of ever seeing it completed;—nor are the circumstances under which it at length appears very auspicious; inasmuch as I am deprived of the *finishing hand* of my friend and former coad-

jutor, the Rev. W. H. COLEMAN, without whose co-operation the work would never have been undertaken. Still, as little more than the arrangement is now necessary, and I have a considerable body of materials on hand, I feel that I am perhaps called upon to make an effort to publish them,—more especially as I am indebted to the labours of many kind and zealous Correspondents for a great proportion of the information I possess, and who probably, together with the Public, might think me in a certain degree pledged to bring the work to a close. Acting under this impression, I have resolved to undertake the publication, and I propose the work should consist of Four Parts, which will appear consecutively every two or three months, according as I can prepare them; so that the whole may be completed within the twelvemonth.”

The cordial thanks of British botanists are certainly due to the author of the preceding paragraph, for perseveringly carrying out the original intention, and not depriving them of this important addition to our local floras for English counties. The turn of thought and feeling conveyed in the following passage, will find a kindly echo in the minds of others :—

“It does not occur to me that I need say more in the present stage of the work. It is with very mixed feelings that I have undertaken it. More, alas ! than one kindred spirit, in whose company it was commenced, has, ‘like the flower of the field,’ passed away. Others are removed to a distance, and naturally cease to take the same interest in the pursuit which once occupied us so gladly. Still, it is not without satisfaction that by-gone hours have been brought again before me,—that the plant and the place, and the pleasure of finding both, have come fresh into my memory ; and if I should succeed in imparting any like pleasure to a rising generation of botanists (for these, like the flowers they seek, are ever springing anew), I shall have nothing to regret.”

In treating the species, the author judiciously omits generic and specific characters. But he gives the derivation of names ; accents the principal vowel in the generic name ; and refers (with more tedious care than necessary or useful) to the pages of Smith’s ‘English Flora,’ Lindley’s ‘Synopsis,’ Babington’s ‘Manual,’ as also to the figures of ‘English Botany,’ where the species are described or illustrated. The distribution of each is well and fully shown ; first, under the three principal divisions, and subordinately under such of the twelve districts in which it has been ascertained to occur ; speci-



fied localities being indicated for the less widely or less frequently distributed species.

C.

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BOTANICAL SOCIETY OF LONDON.

*Friday, 2nd June, 1848.* — John Reynolds, Esq., Treasurer, in the chair.

John Price, Esq., of Denbigh, J. H. Blount, Esq., of Birmingham, and Francis Harley, Esq., of Costock, Loughborough, were elected members.

The following donations were announced:—

A collection of German mosses, presented by Dr. C. F. P. de Martius, of Munich; a collection of specimens of American Oaks, with their fruit, presented by Mr. Edward Doubleday; British plants, presented by Dr. R. W. Falconer, Mr. T. Westcombe and Mr. J. H. Thompson. Mr. William Andrews, M.R.I.A. (the Society's Local Secretary for Dublin), exhibited a beautiful collection of living specimens of Irish Saxifrages, collected in Kerry, and comprising specimens in illustration of the varieties of *Saxifraga umbrosa*, *S. hirsuta*, and *S. Geum*. Mr. A. also presented leaves from a cultivated specimen of an apparently new species of Saxifrage, the original plant having been discovered by him in Kerry, in September, 1845. In a letter to Mr. G. E. Dennes, the Secretary, Mr. A. stated "that the form and structure of the leaf had not before been met with or described among the Saxifrages, and probably the flower might present some feature of interest." Mr. S. P. Woodward presented specimens of a species of *Carduus*, so nearly intermediate between *Carduus Forsteri* and *C. pratensis*, as to render its proper specific name doubtful until a larger series of specimens shall have been examined. It will probably prove an extreme form of the variety "*pseudo-Forsteri*" (London Catalogue), frequently mistaken for the true *C. Forsteri*. The specimens were collected by Mr. W., on the farm of Mr. Thomas Arkill, at Penhill, near Swindon, Wilts, in May last.—*G. E. D.*

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*Reply to Mr. Watson's Observations, Phytol. iii. 84.*

By JOSEPH SIDEBOTHAM, Esq.

ALTHOUGH Mr. Watson very considerably recognizes the right of other botanists to question any of his assertions, it appears that he does not recognize their right to an answer, though I certainly cannot see the use of the former if the latter be denied. Mr. Watson (Phytol. iii. 84) asserts very boldly and dogmatically, that "the other three species mentioned in Mr. Sidebotham's communication are introduced and imperfectly naturalized." It is very easy to make such assertions, but not so easy to prove them; and when called upon to do so, Mr. Watson affects to despise *my* claim, instead of honestly vindicating *his* marvellous statements, and expends his wrath on what every one must see was a mere *lapsus calami*, thus leaving the subject of my letter wholly untouched; in fact, Mr. Watson descends at the outset to low personalities, a circumstance that speaks for itself.

In these democratic times every one thinks himself entitled to a hearing; and the day has gone by when false positions can be taken, and erroneous statements be put forth, and allowed to go unchallenged, occasionally even by persons who do not lay claim to the dignity of intellect that would raise them to a level with those whom they would question. I have no doubt that Mr. Watson would be very glad if I and others would attend to his suggestion, and refrain from criticizing his productions for the future: it would save him much trouble and perturbation, and keep up his fond delusion that they are immaculate. When my remarks on the 'London Catalogue,' seconded by those of Mr. Grindon, appeared in the first volume of the 'Phytologist,' no attempt was made to answer the queries, or explain the inconsistencies pointed out; and though many of our suggestions have been attended to in the second edition, it is still very unworthy of its name; and until Mr. Watson explain what he means by a *native*, *naturalized*, and *imperfectly naturalized* species, every botanist will be at liberty to consider that he cannot do so consistently; and all know what to think of his dogmatical assertion that *Oxalis stricta* is imperfectly naturalized, in spite of the evidence which has been brought to prove the contrary.

Till these explanations are made every one must accord with the common-sense view taken by the Editor of the 'Athenæum,'—"This list is capricious and unsatisfactory, and of no authority with men of science."—Athenæum, p. 413, April, 22, 1848.

JOSEPH SIDEBOTHAM.

Cheshire, June 14, 1848.

[As I think this discussion cannot be pursued further with advantage to science or pleasure to the readers of the 'Phytologist,' I hope that Mr. Watson will not reply: and having expressed that hope, I must take the liberty in a friendly spirit to point out to Mr. Sidebotham that he does not escape from the charge of misrepresentation by terming that misrepresentation a *lapsus calami*. If Mr. Sidebotham by a slip of the pen wrote *one* thing while he meant *another* thing; then *that other thing*, which he intended to write, but did not, should not only be forthcoming, but should establish the justice of any remarks grounded on the now-called *lapsus calami*. Again, Mr. Sidebotham *assumes* that the strictures he quotes from the Athenæum are penned by the editor of that journal: now those who are behind the scenes *assume*, and on far better grounds, that the editor of the Athenæum neither knows nor pretends to know anything of Botany; and assume further, that the passage in question was penned by some tyro, whose blunders or presumption may have been exposed by the caustic remarks of the author of the 'London Catalogue.' It is a great drawback to the value of the Athenæum that its remarks on Natural History are not editorial: there are so few writers on any one branch of the science, and these few are so hostile to each other, that there is little chance of their reviewing one another fairly. I now never send a book to the Athenæum, deeming it likely to get into the hands of some scribbler, whose misdeeds I have chastised, and who may still be smarting under the lash.—*Edward Newman*].

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*List of Habitats of Plants recorded in MS. in a Copy of Blackstone's 'Specimen Botanicum.'* (Communicated by W. PAMPLIN).

(Continued from page 170).

*Valeriana sylvestris major montana*. About three miles before you come to Westerham, in Kent, in the road from Croydon.

*Valerianella vulgaris major species serotina*. In the corn about Otters Pool, and near Smoakhall Wood, by Bath.

*Verbascum pulverulentum flore luteo parvo*. About the ditch on the outside the city walls, at Norwich; also by the river Yare, between Bishopsgate Bridge and the ferry-house, both places plentifully.

*Veronica flosculis singularibus foliis laciniatis erecta*, R. Syn. 280. 6. In a field on the right hand of the road from Sudbury towards Braintree. Mr. Andrews.

*Vinca pervinca minor.* By the walkside behind Bellsiz House, Hampstead, towards Tottenham Court Road.

*Urtica pilulifera.* About the walls of Yarmouth, in Norfolk.

*Ulmus minor folio angusto scabro.* In the road between Ipswich and Colchester.

WILLIAM PAMPLIN.

45, Frith Street, Soho,  
24th June, 1848.

*On the Acceleration of the Frondescence of Trees and Flowering of British Wild Plants in the Spring of 1848.* By EDWIN LEES, Esq., F.L.S., &c.

IT must be admitted that in all our Floras there is a looseness in the indications of the times of flowering of the plants described; so that in many instances, as in Francis Moore's time-honoured predictions of weather, where rain was announced "the day before or the day after" such a date, so in the works referred to, the month before or the month after would really suit just as well as the time stated. In fact, precision has been somewhat neglected here, and I believe that Mr. T. Forster is almost the only author\* who has come directly to the point, by stating in the *Flora Spectabilis* and *Rustic Calendar* of his 'Encyclopædia of Natural Phenomena,' the precise times of plants beginning to flower, full flower, and end of flowering. Some years since, indeed, the amiable and observant naturalist the Rev. W. T. Bree, gave specimens of a 'Calendar of Coincidence,' in Loudon's 'Magazine of Natural History,' with a view to connect the flowering of plants with the appearance of birds, insects, &c. I have long made memoranda of the same kind, but I believe nothing complete has yet been published.

The alternations of temperature and changes of weather in the variable climate of England, no doubt render positive exactness impossible, and therefore I presume the average time of flowering is struck with respect to our native plants, and that is what is intended in all the Floras, whether general or local. But as this is often but a kind of guess-work, I am inclined to think it would be better to denote the

\* If this has been done to any extent by other botanists, I beg they will impute my omission of their names to ignorance of their labours. Mr. Forster has further worked out the subject in his 'Perennial Calendar,' and I have aimed at its development in the 'Botanical Looker-Out.'

time when plants commence flowering in the most favourable season, as well as the end of their flowering. In local Floras especially this should be attended to. That an acceleration in the time of flowering of many of our wild plants has taken place this year, I think I shall be able to prove by my own observations, compared with those of Mr. Forster on the one hand, and the months given in the Floras of Hooker, Babington, and Steele, on the other, which I take as being of most recent date, and one or other in every botanist's possession. I think the subject may be considered interesting as contrasting former seasons with the present; but I must premise that my observations will probably not fully accord further north than the midland counties.

The winter was moist and mild, so that it might have been expected that our wild flowers would appear earlier than the general average, and this was the case with one exception. I do not mean, however, to notice stray primroses and oxlips smiling under a warm hedge, but shall commence with the blackthorn (*Prunus spinosa*), which, unless the season be backward, I have generally seen in flower on April 1st; Mr. Forster, however, says that it "usually blooms about the middle of April." I find this note in my journal, under April 1st, this year: "Sudden summer has at once come upon us, and to-day the temperature is that of July, with quite a feeling of oppression. Damson and plum-trees in gardens, and *Prunus spinosa* in the hedges, in full flower. The hawthorn is already mostly in leaf, brambles are green with young shoots, the woodbine quite out in leaf, and the young shoots of roses apparent. White butterflies appeared."

*April 3.*—Wild cherry (*Prunus avium*) in flower. Leaves of horse-chesnut and sycamore expanded. Celandines (*Ficaria verna*) in full expansion.

On April 8, however, the "blackthorn weather," as country people call it, came on with cold N. E. winds, arresting vegetation in some degree. Yet still, on April 9, hawthorn, elder, and larch, were in full leaf pretty generally; and the blackthorn's snowy clusters beautifying the hedges in all directions. *Anemone nemorosa* in flower.

*April 13.*—The young leaves of lime and birch expanded. Jack-by-the-hedge (*Alliaria officinalis*) in flower. Forster gives April 28 as its first flowering day. May according to Hooker, Babington, and Steele.

*April 17.*—The pear orchards beautifully in flower, presenting a glorious spectacle. Martins (*Hirundo urbica*) first seen this evening. A corps of swallows had been seen on the 10th.

*April 23.*—*Cardamine pratensis* in full flower. Mr. Babington correctly says April in his Flora, but Hooker and Steele May. Forster, perhaps a little fancifully, says, under April 6, "Flowers here and there in moist meadows, hence its name *Lady's Smock*, this being old Lady-mas day in the old style." The cuckoo heard first time this season.

The cowslips are now in full flowering, though Forster says "not numerous in the meadows till about the 26th," (of an average season). Bluebells (*Scilla nutans*) now tinting every copse with the azure of heaven. Forster truly says, "Flowers about the middle of April;" yet Hooker, Babington, and Steele, all indicate May. April 23 (St. George's day) is, according to Forster, the maximum flowering of them.

*Caltha palustris* in full golden perfection. Under April 22, Forster says it "flowers plentifully." Hooker and Babington give it the benefit of March, when perhaps a few stragglers may appear. It is seldom that the authors of our Floras are early enough in their indications. Orange-tipped butterflies numerous in the meadows.

Oaks putting forth young leaves this day, and frondescence everywhere apparent, except on ash-trees and black poplars. The season so far a very forward one, as Forster gives May 10 as that of the "first frondescence" of the oak, and I have known seasons when expanded foliage was not procurable on May 29.

*April 27.*—Lombardy poplars (*P. dilatata*) in leaf.

*April 30.*—Apple-trees here and there in flower in orchards.

The mean temperature of April was 47° Fahr., but as it had a considerable proportion of gloominess, rain, and cold winds, there was nothing very particular in its aspect, except as being more leafy than usual. But the month of May set in with such extraordinary summer weather, and throughout maintained such a clearness of sky and absence of rain, as to make it remarkable to the commonest observer. Hence, I was anxious to notice particularly any acceleration in the flowering of our wild plants that might occur, and kept a look-out accordingly. The maximum temp. of April 24 was 49°, but on the 29th this had risen to 56°, on the 30th to 61½°, on May 4 to 70°, and on May 12 to 80°, the average temp. for the week ending May 17 being 62½°, near ten degrees above the average value for the season. Yet, strange to say, although fully in leaf, no hawthorn was in flower to my observation on May 1, and even on May 5 I remark: "Apple-trees generally in flower, but no hawthorn blossoms yet apparent." It is remarkable, in fact, that none appeared till May 7, and the flowering

was all over the country so poor and inconsiderable as to be generally remarked.

*May 4.*—Lilac (*Syringa vulgaris*) in flower.

*May 7.*—Ash (*Fraxinus excelsior*) in flower, with young foliage just apparent. All other forest trees in leaf, except the black poplar.

*May 8.*—Horse-chesnut (*Æsculus Hippocastanum*) in flower. La burnum just expanding its blossoms.

*May 9.*—The meadows are now golden-streaked with the flowers of *Ranunculus bulbosus* and *acris*. Forster says the maximum of flowering for *bulbosus* is the first half of May; for *acris*, end of May and June. *Acris* was well in flower this year in May, though the Floras give June and July for it.

*May 10.*—The heat quite enervating, but vegetation progresses with extraordinary activity. Even the ash partially in leaf. Black poplar showing its first copper-coloured foliage. Apple-trees at their acme of beauty. Cockchaffers have appeared, but they seem very few in number this year.

*Lonicera caprifolium* in flower.

*May 12.*—*Rosa spinosissima* in flower; also *Geranium lucidum* and *Ranunculus parviflorus*. (June, Babington).

*May 14.*—*Rubus cæsius* in flower. Always the first of the train of Rubi, but this date is earlier than I have before recorded. Forster and all the Floras say June. Mr. Leighton gives July for Shropshire. It was universally in flower this season in May.\*

*Tragopogon pratensis* in flower. June according to Hooker, Babington, and Steele; Mr. Forster, however, justly says that it flowers about the 16th of May, becomes abundant 1st of June, and declines in July.

*Bryonia dioica* in flower.

*May 15.*—Very sultry. Max. temp. of this day  $81\frac{1}{2}^{\circ}$ . Holly (*Ilex aquifolium*) in flower.

Red campion (*Lychnis diurna*) in flower; also *Potentilla* in a few places by roadsides. June according to Forster and all the Floras, which is usually the case.

*Cenanthe peucedanifolia* in flower. This plant I have noticed as

\* My esteemed and observant friend the Rev. Andrew Bloxam, who is gloriously hedged in with Rubi at his pleasant domicile in Leicestershire, says (*Phytol.* iii. 182) that in his vicinity *R. plicatus* and *subulstris* are the first to flower, but as I know from observations made in his company, *R. cæsius* is curiously enough very rare in that neighbourhood, it escapes his notice.

flowering about the middle of May for some years past; yet Hooker and Babington say June, and Steele even July. It flowers full three weeks before *C. pimpinelloides*, and longer still before *C. Lachenalii*, so that it may be identified by its early flowering alone. It becomes withered and almost lost by the middle of June.

Ash-trees and black poplars now in full frondescence, and the leafage of trees completed.

*May 16.*—Ragged Robin (*Lychnis flos-cuculi*) in flower. May 22 is Forster's average date; May and June, Babington and Steele; June, Hooker.

Elder (*Sambucus nigra*) in flower. This tree has certainly flowered this season much earlier than usual; all the Floras indicate June, and Mr. Forster gives June 13 as the "sheep-shearing day," the sign of which was, according to Dyer, the flowering elder.

"If verdant Elder spreads  
Her silver flowers, if humble daisies yield  
To yellow Crowfoot and luxuriant grass,  
Gay shearing-time approaches."

I have before observed in Bot. Looker-Out that "the elder is very characteristic of our transient summer, which can never be said to be established till the perfume of its sulphur umbels loads the evening air, and this frequently happens the last week in May, but in 1839 the flowers were not expanded till June 17;" a month's difference between that and the present season!

Great summer daisy (*Chrysanthemum leucanthemum*) in flower. June, say all the Floras, and Forster says that it is "not abundant till about St. Barnaby, whence the name (June 11)." But the fact is that it always begins to flower in May, and the saint seems to have no just claim to its appropriation.

Mouse-ear hawkweed (*Hieracium pilosella*) in full flower.

Papaver Argemone in flower numerously. Forster fixes it from "May 24 to June 10." The Floras say generally June.

Glaux maritima in flower by the side of the saline Droitwich canal. June, Babington; July, Hooker and Steele.

*May 17.*—*Rosa canina* in flower. Very early. "Wild roses," says Forster, "belong to the Solstitial Flora, and flower in June and July."

*Viburnum Opulus* in flower. June, say the Floras.

*Hypochaeris radicata* in flower. July according to Hooker, Babington, and Steele.

*Sonchus oleraceus* in flower. June, all the Floras.



Cowslips rapidly going off. Meadows refulgent with golden *Ranunculi*, but becoming now somewhat chastened with the bronze spikes of *Rumex acetosa*. The tall mayweed (*Anthriscus sylvestris*) now fringes the evening robe of contemplation with a border of silver, seen even at midnight.

*May 20.*—*Iris pseud-acorus* in flower in some quantity. I have found the flowering of the yellow *Iris* a capital test for an early or late season. In general it may be met with in flower on June 1, and this is Forster's date in his *Encyclopædia*, and the season is behind if it be not then apparent in the marshes. On the other hand, I should reckon the season so many days earlier than an average one as the *Iris* flowered before June 1. Of course the Floras indicate no month earlier than June.

In this paper I have only taken the plants that actually fell under my own observation, and have omitted those that did not seem at least in some degree illustrative. Without "full flower" is mentioned, it must be understood that a few plants only were observed with unfolded petals.

*Senecio aquaticus* in flower. Early in June according to Forster; Hooker, Babington, and Steele, say July and August.

Yellow rattle (*Rhinanthus Crista-galli*) rather numerous in flower in a meadow by the Severn. June according to the Floras. Forster says that this plant belongs to the Solstitial Flora. "Haytime," he observes, "begins in the neighbourhood of London about the 20th of June, when the *Rhinanthus Crista-galli* flowers; it is later by ten days in most other parts of England." But it is usually said in Worcestershire that the grass is ready to cut when the seeds of the yellow rattle are so ripe as to be rattled in their capsules.

*Orchis latifolia* most luxuriantly in flower.

*May 23.*—*Rubus dumetorum*, *var. ferox*, in flower. July and August are set down by Mr. Babington for this form, yet it was plentifully in flower in May this season. The yellow *Iris* generally in full flower.

*May 24.*—Hawthorn flowers rapidly going off, succeeded by the elder, now displaying its silver umbels in all directions with luxuriant profuseness. The trees have all the leafiness of June in their aspect.

*May 25.*—*Rosa Doniana* beautifully in flower in hedges near Cruckbarrow Hill. Highest temp. of day  $78\frac{1}{2}^{\circ}$ .

*May 26.*—*Rubus suberectus* in flower. June, Hooker and Steele; July, Babington.

Great snapdragon (*Antirrhinum majus*) in flower on several old

walls. All the Floras say July and August. It was abundantly in flower the first week in June.

*May 27.*—*Malva rotundifolia* and *Convolvulus arvensis* in flower. The Floras say June for the latter, and Forster gives June 26 as its commencement of flowering. The meadows have already cast off their golden robe of buttercups, the grasses are grown high, and a cinereous hue prevails from their being generally in flower. The grating of the corn-crake resounds every evening.

*May 28.*—Privet (*Ligustrum vulgare*) just coming into flower. Clare, the Northamptonshire poet, in his observant sketches, has well combined the privet with other summer flowers:—

“How sweet the walks by hedge-row bushes seem,  
On this side wavy grass, on that the stream;  
While dog-rose, woodbine, and the privet-spike  
On the young gales their rural sweetness teem,  
With yellow flag-flowers rustling in the dyke.”

*Rosa villosa* in flower. *Doniana* and *canina* plentifully. A few flowers of *Cornus sanguinea* expanded.

*May 30.*—Foxglove (*Digitalis purpurea*) in flower. June 6 is the day when, according to Forster, it “begins to flower.” He says they continue all through the æstival season, though “they first blow early in the solstitial.”

*Cornus sanguinea* in full flower. Woodvetch (*Vicia sylvatica*) in flower on the banks of the brook at Sapey, famous for the legend of the tracks of Saint Catharine’s mare and colt. The wild scene of broken sandstone slabs over which the brook murmurs in many a water-break, is indeed well worthy of a legend; and to gratify the exploratory naturalist, I can say the “tracks” are still there! *Geum rivale* and *intermedium* in flower by the same brook, just above Sapey Pritchard Bridge. *Polygonum Bistorta* and the Columbine, both in full flower, also adorned this romantic vicinity, as well as the white odorous *Habenaria chlorantha*. The *Vicia sylvatica* covered the bushes about the banks of the brook most profusely. The Floras indicate July for its flowering.

*May 31.*—Common mallow (*Malva sylvestris*) in flower. Commences flowering according to Foster on June 16. This common road-side plant forms a very good test for an early season. The temperature that had urged on the progress of vegetation was now, however, on the decline, though its effects will be traced further. Maximum temp. of this day  $69\frac{1}{2}^{\circ}$ , and the mean temperature of the

week 58 $\frac{1}{4}$ °. I noticed the Libellulidæ to be exceedingly numerous this month, especially the bronze-winged fluttering *Agrion Virgo*, most commonly the attendant of the succeeding month.

*June 1.*—Privet generally in flower. The elegant crimson grass-vetch (*Lathyrus Nissolia*) out most profusely, as well as the rarer *Lathyrus Aphaca*. Hooker gives May for the former, which is correct. *Lathyrus pratensis* also sparingly in blossom, though the Floras all say July for it.

*June 2.*—*Cenanthe pimpinelloides* in flower in its old habitat on the dry red marl at Powick. The Floras are here again "behind time," for they all say July, though even in ordinary seasons it begins to flower about the middle of June. It is remarkable, that although this plant is abundant in many hilly meadows between the Malvern hills and the Severn, I have never found it north of Worcester.

*June 4.*—Woodbine (*Lonicera Periclymenum*) in full flower. This no doubt came out earlier, but I did not happen to meet with it. Forster says it may be called a solstitial plant, but "flowers all summer, from May to August."

Corn poppy (*Papaver Rhœas*) in flower. A true solstitial sign. "Flowers about St. Barnabas (June 11)," says Forster, "and by mid-summer quite reddens the corn-fields, in some soils." The poppy has been always singularly connected with corn, and perhaps Virgil's expression, "*rubicunda Ceres*," in the 1st Georgic, may allude to this. At all events, Ceres is often very much reddened with the interloping poppy ever clinging to her robe.

*Lapsana communis* in flower. July and August according to Hooker and Babington. Steele rightly says June and July. *Rubus cordifolius* in flower, and *R. suberectus* most beautifully so. Many oak-trees almost bare from the attacks of an overwhelming army of caterpillars; I believe that of the little green Tortrix viridana.

*June 5.*—*Potentilla reptans* and *Genista tinctoria* in flower. The latter belongs to July and August according to the Floras.

*June 6.*—*Sedum acre* in flower. A sure solstitial sign when roofs glow with the expanded golden petals of this plant. Hay-making has commenced.

*June 9.*—Barnaby bright of the old style. "It is now the beginning of the solstitial season," says Forster, "and consequently marked by many distinguishing phenomena. The various poppies, the roses, the pinks, and other solstitial plants, begin to flower plentifully."

*Rosa arvensis* in flower. This trailing rose, distinguished by its peculiar and less grateful odour, blossoms later than any of our other

native roses, and often continues far into July. I have not observed it so early before.

*Helianthemum vulgare* in full flower. Forster says that it begins to flower on June 26. The Floras unite in being too late, indicating July and August. Saintfoin (*Onobrychis sativa*) now makes a gorgeous show on limestone banks with its crimson flowers. Abundant at the Croft, Mathon, with my friend John Roby, Esq., of Malvern.

Wild thyme (*Thymus Serpyllum*) and lady's fingers, or lamb-toe (*Anthyllis vulneraria*), in flower.

"The yellow lamb-toe I have often got,  
Sweet creeping o'er the banks in summer time;  
And totter-grass, in many a trembling knot,  
And robb'd the molehill of its bed of thyme."—CLARE.

Thyme is placed to the account of July by Hooker and Forster, while Babington truly says June.

Vicia Cracca in flower. Correctly indicated by Mr. Babington, but July according to Hooker and Steele. *Poterium Sanguisorba*. July, Hooker; June, Babington and Steele.

June 11.—*Enanthe crocata* in full flower, and evidently been so some days. Mr. Forster indicates June 12, yet all the Floras say July, which is rather slow travelling for the present day. Time, the season, or the Floras, must be "out of joint" here. Great valerian (*Valeriana officinalis*) also in flower.

*Centaurea nigra* in flower. This date must be early for the *Centaurea*, but I find a strange discrepancy about it. Hooker gives June to August as the time of flowering of the black knapweed; while Babington and Steele indicate that it does not flower till August. This, therefore, seems very much like a case of *lapsus calami* on the part of the learned botanists last named. Sir J. E. Smith has June—August in the 'English Flora,' which is doubtless right.

*Prunella vulgaris* in flower. Forster and all the Floras say July.

June 12.—*Vicia bithynica* in full flower at Alfrick. The Floras, all to leeward, indicate July. *Knautia arvensis* in flower. This must be an acceleration, as Forster and all the Floras give July. *Verbascum thapsus* in bloom at the top of its spike. The Floras say July, but Forster indicates Midsummer-day.

*Carduus acanthoides* and *palustris* in flower. Babington accurately states June for the former, but joins with Hooker and Steele in stating July for the latter. Forster, more precisely, says early in June.

*Hypericum hirsutum* in flower. The St. John's-worts are well

known solstitial flowers, generally keeping pretty true to Midsummer, but certainly earlier this year. The Floras all indicate July, and yet, as Mr. Forster truly observes, "coming into flower about St. John the Baptist's-day (June 94), they have thence derived the name of St. John's-wort."

*Crepis virens* in flower. The fairy-ring agaric appeared this day as the first fruit of the recent showers, and perhaps indicative of others to come. Storms of rain indeed followed till

June 15.—*Geranium pratense* in flower. Mr. Forster and the Floras all agree here.

June 19.—*Ballota nigra* in full flower. The Floras not to time again, and Mr. Forster himself behind. The meadow-sweet (*Spiræa Ulmaria*) has commenced flowering. Forster and Babington agree as to this beginning flowering in June, but Hooker and Steele give the later period of July.

June 20.—*Galium Mollugo* and *palustre* in flower, the latter fully so. The common name Mr. Forster says should be "our" Lady's Bedstraw, as the Virgin Mary was originally intended. Forster and all the Floras say July for both species.

Many of the composite plants are now in bloom, and among them in woody places appear *Hieracium murorum* and *Lactuca muralis*. The latter would seem to be in advance, as the Floras intimate July for it, yet Forster with more exactness says it begins to show early in June. *Lapsana communis* is also in full flower, leaving the Floras a month in the rear, but Forster again exhibits his accuracy of remark by indicating the middle of June. *Pyrethrum Parthenium* and *inodorum* are also before the time stated in the Floras.

Corncockle (*Lychis Githago*) in full flower. The Floras agree as to June, but the 28th is the day given by Forster, who, placing it by the side of the pretty but rarer *Centaurea Cyanus*, says they only become common in July.

*Hypericum pulchrum* expanded this day.

*Convolvulus sepium* exhibits its large white bells upon the lofty bushes close to Shrawley Wood. Certainly much earlier than usual, and the Floras are right in giving July as the general month. Mr. Forster, too, remarks that the great bellbinder belongs to the æstival or late summer Flora, and flowers from July 2 to the end of September.

Deptford pink (*Dianthus Armeria*) in flower. The Floras say July, but I agree with Mr. Forster that it always begins to flower in June.

I also noticed *Reseda luteola*, *Polygonum amphibium*, and *Scro-*

*phularia aquatica*, to be in flower this day ; all ascribed to July by the Floras I have examined.

*Rubus Wahlbergii* splendidly in flower, allied to *R. dumetorum*, which is also now fully in flower.

*June 23.*—The flowering of the various forms of bramble, perhaps more than anything else, proves the great acceleration that vegetation has received this year. July and August are the general times of flowering given by Mr. Babington, and it is seldom that any of the species flower in June except *R. cæsius*, *dumetorum*, and *sublustris*. Yet this day I observed nearly every recorded form in full flower except *R. fruticosus* ; while *cæsius* and *dumetorum* were abundantly in flower in May.

*June 26.* — *Rubus fruticosus (discolor, Bab.)*. — The uppermost flower in numerous panicles expanded this day. This is the latest to flower of any of our Rubi, and in backward seasons does not expand its petals before August. This is the earliest date I have ever observed it. I should remark that the uppermost flowers of the panicle in brambles always expand first, and of course first exhibit fruit ; so that representations of ripe fruit on lower branches with flowers above, as in the Eng. Bot. figure of *glandulosus*, and that of Kœhleri in *Rub. Germ.*, are incorrect. The lower branches of the panicle are indeed often in flower when the upper are in fruit.

My flowering indications here end, as I think I have brought forward instances sufficient to prove my case, though more might have been given, and probably others have been presented to observation in localities different to my own.

I would observe, in conclusion, that in comparing my notices with the months of flowering given in the Floras of Sir W. J. Hooker, Mr. Babington, and Dr. Steele, of Dublin, I have not the slightest intention to "hint a fault" at the labours of those learned systematic botanists. I wished to establish an acceleration in the flowering of many of our wild plants this year, and there appears certainly a seasonal discrepancy between us in many of the instances which I have remarked upon. Perhaps there is more than this, and I almost think that greater precision might attach to the indications of flowering by the prefix of beginning, middle, or end, to each particular month, as the case may be. Doubtless it requires a different eye in some respects, and perhaps a mind somewhat differently moulded, to observe living objects abroad and describe at home from specimens ; and the technical botanist, in his nice discrimination of species and varieties in his library, must trust to the mems. of his friends, in many

instances, for their exact times of flowering, or copy the undisputed statements of his predecessors.

If it be thought that such an exactitude as I wish can scarcely be expected in general Floras, then perhaps it might be useful to have a companion Catalogue formed somewhat on the plan of Mr. Forster's 'Flora Spectabilis,' and indicating, as he does, the "times of first flowering, full blow, and going out of bloom." This, with illustrative notes, might be rendered interesting and instructive, even beyond the circle of the collecting botanist. I only throw out the hint at present. Mr. Forster's work from which I have quoted is, I believe, now out of print, and for the pure botanist (though full of curious remarks) is rather too overloaded with weather prognostications, astronomical details, and references to saints of olden days, who, however, in many instances had their names connected with our familiar wild plants. In an interleaved catalogue of the kind I advert to, and carried out on excursions, memoranda of flowering, habitats, and other details might be at once noted, which cannot be so well done in a valuable or bulky general Flora, but which would be of great use for reference, and the more so as done at the time.

EDWIN LEES.

Cedar Terrace, Henwick, Worcester,  
July 4th, 1848.

*A few Words on the terms Native, Naturalized, and Imperfectly Naturalized.* [See Phytol. iii. 188]. By S. P. WOODWARD, Esq.

THE meaning of these terms will be sufficiently obvious to most botanists; if, however, any of your readers require an interpretation, the following remarks are very much at their service.

1. The term *native* involves the idea of the species having been originally created in the region where it is found, or of its having migrated into it by natural means, *i. e.*, unassisted by man. For example, the double cocoa-nut appears to be an aboriginal inhabitant of the Seychelles Island; whilst the common cocoa-nut has been wafted by wind and wave from island to island, extending its range every year, until we cannot trace its birth-place. Again, there are some geological reasons for believing (and perhaps no botanical reasons for disbelieving) that *all* our British plants have migrated here, at some time or other, from various parts of the world; that none of them were originally created here.

The term *native* may sometimes require to be qualified, but not with regard to British plants, which all come under the same category.

2. *Naturalized species* are those which have been introduced purposely or accidentally by man, and finding conditions suitable for them, have continued to exist without artificial aid, and often in defiance of attempts at their extirpation. Some of these are medicinal plants, held in esteem long ago by monk and simpler, now only by the herbalist, such as the hellebore and birthwort, monks'hood and master-wort, belladonna, opium-poppy, and perhaps *Carduus "benedictus!"*

Of these the hellebores and belladonna have spread themselves over particular limestone districts, such as the Downs, the Chiltrens, and the Cottes Wolds, and so identified their distribution with undoubted natives, that I for one do not believe in their alleged modern and artificial introduction. Others are pot-herbs and garden flowers, found near the ruins of mountains, or where cottage-gardens have been; or they may have been introduced in field-crops, and have established themselves by waysides and in waste places. The list of these is numerous. I will only mention lucerne and flax and gold-of-pleasure, the winter aconite and pæony, various anemones, pinks, and honey-suckles, larkspur and candy-tuft, horse-radish and salsafie, saffron, coriander and caraway, balm and borage.

3. *Imperfectly naturalized*.—Since the time of Ray many plants have been added to the British Flora, and every year adds to the list species which require, next year, to be struck off. Foreign vessels leave ballast-heaps on our coasts, upon which spring up a harvest of plants unknown before, and which are seldom found until farmers buy foreign flax and clover-seed, and then come the new dodder and Orobanches, grasses, and composite plants, many of which, fortunately, do not ripen their seed in England before they are removed with the crop, and hence they have not become "naturalized."\* It is probable that many plants which are notoriously on the increase, like the nettle, *Chenopodia*, and *Chelidonium majus*, require more nitrogenized matter than exists in untilled soil; and this is why so few of the field and garden crops become permanently naturalized. Buckwheat, maize, hemp, and *Solanum tuberosum*, would be a grand addition to the British Flora, quite on a par with the *Eschscholtzia*, *Impatiens*,

\* The solitary service-tree in Bewdley Forest has now quite lost the chance it had for several centuries of multiplying itself and becoming "permanently naturalized."



Mimuli, and Martagon lilies, which are registered as growing for a season on some lonely rubbish-heap. That a great many plants lately introduced into this country are fairly in the way of becoming "naturalized," cannot be doubted; but it is well to keep them in a provisional list till they have proved their qualifications for permanent residence in their adopted country.

Amongst the doubtful natives there is one for which I wish some botanist would speak a good word—the chesnut; perhaps some day it will be found in that old and little-explored herbarium the tertiary strata, although Mr. Bowerbank has failed to pickle any from Sheppy; and meanwhile it might be inquired whether any of our ancient structures, like the roof of Westminster Hall, were built of home-grown chesnut, or whether it is only the sessile-flowered oak timber, as Mr. Cooper suggested.

Those who live in the country, especially in the eastern counties, will witness, not without regret, a change going on in the distribution of our wild plants, which threatens to be as complete as any change related by the geologist. Every year the habitats for the more interesting plants, those which have small power of multiplying or migrating, become fewer, and half a century hence botanists will doubt whether the *Pyrola*, *Vacciniums*, *Andromeda*, *Convallaria multiflora*, *Oreopteris*, *Lycopodia selago* and *clavatum*, &c., ever grew in Norfolk. In their place we shall have a number from amongst that kind of plants which in the 'London Catalogue' are said to be "imperfectly naturalized."

S. P. WOODWARD.

July, 1848.

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*Note on the Loose and sometimes Incorrect manner in which the Time of the Flowering of Plants is given in our Manuals of British Botany.* By C. DREW SNOOKE, Esq.

I do not know whether in the pages of the 'Phytologist' attention has been at all directed to the loose and sometimes incorrect manner in which the time of plants' flowering is given in our Manuals of British Botany. A greater degree of exactitude in this respect seems highly desirable, and would, I presume, be easily attainable, if those botanists who, like myself, are but tyros in the science, were to have their attention directed to this subject as one within the compass of

their abilities, and were to carry on for a few years a series of observations on the beginning and ending of the time of flowering of all those plants that may be situated conveniently for observation in the locality of each observer. In each year an observation should be recorded of the earliest day the plant was observed to flower, and the latest day on which it was seen in blossom, and after some years a comparison of these observations would give an average day for a commencing and terminating date; which might be inserted in our botanical manuals thus, May 12—July 5; instead of the vague "June and July," &c., as at present.

It is likely, however, that a considerable difference in the flowering time of the same plant would be observed in distant parts of Britain; in some plants more than in others.

A few days ago, June 20, I walked a distance of eleven miles and back to obtain a specimen of buckbean (*Menyanthes trifoliata*), and was much disappointed on reaching the spot at being unable to find a single flower; there were some flowering stems with fruit in various stages of maturity. Yet in Hooker's 'British Flora' and other works this plant is stated to flower in June and July.

I trouble you with these remarks in the hope that you or some equally competent person may be induced to bring the subject before the readers of the 'Phytologist.'

C. D. SNOOKE.

Newport, Isle of Wight,  
July 3, 1848.

[Our correspondent will find observations on the same subject in various numbers of the 'Phytologist.' We think it one of far greater interest than our leading botanical writers, *i. e.*, Hooker and Babington, seem to consider it. In neither the 'British Flora' nor 'Manual' do we find evidence of care or of personal observation in the records of the time of flowering: it is our individual opinion that care and personal observation are needful in every branch of the science; and we have frequently wished the dates of flowering in these two works wholly expunged, or, what would be perhaps still better, introduced here and there from the actual observations of the writer. Why should not the dates be given with a view to positive utility, instead of being introduced like the numbers preceding the specific name as a mere matter of form?—ED.]

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*Notes and occasional Observations on some of the Rarer British Plants growing wild in Hampshire.* By WM. ARNOLD BROMFIELD, M.D., F.L.S., &c.

In presenting the readers of the 'Phytologist' with the following list of Hampshire plants, my object has been to promote our knowledge of the geographical distribution of the species in Britain, which important branch of philosophical Botany is now, through the impulse happily given it by the labours of Mr. H. C. Watson, beginning to receive its due share of attention in this country. The time is gone by when such catalogues are to be viewed and their utility measured by their fitness as vehicles for the communication of mere *rarities* to the collector. For this reason it is that so many of the plants now enumerated are such as must be called common in Hants and the adjacent counties, but as restricted in their general range over the kingdom, the epithet is to be understood in the same limited sense.

An early communication of this catalogue having been requested by the editor, it is offered in a less complete state than I could have wished. Some habitats are omitted for want of time to look over the lists and notices I have been favoured with from numerous correspondents, whose kind and zealous co-operation I shall have the pleasing duty of gratefully acknowledging in another place. These omissions, with I hope some new accessions to our county Flora, I trust to supply when the last part of these notes goes to press. Many of the older stations recorded in Turner and Dillwyn's 'Botanist's Guide' are copied from the 'Hampshire Repository,' and are generally attributed to Dr. Pulteney. I have taken them from the original and now very scarce volumes, for the perusal of which I am indebted to the kindness of a friend in Ryde. When the locality for a plant is not followed by the name of an observer, the occurrence of the species therein rests on my own authority, as having been personally seen there; in all other cases the name of the first discoverer or recorder is subjoined, either followed or not by one, two, or three notes of admiration. When no such interjectional sign is placed after a name, the station and species are taken on the sole credit of the observer. A single (!) implies that a *dried* specimen has been seen from the alleged habitat; two such marks indicate the receipt of a *fresh* or *living* example; and three, the verification by myself of both plant and station. Plants certainly introduced are marked (†); those doubtfully indigenous with a (‡), as being the signs usually employed for this purpose.

*Clematis Vitalba*. Most abundantly throughout the county, and the Isle of Wight, wherever the soil contains any notable proportion of calcareous earth; our thick tufted hedgerows often seeming as if weighed down by the oppressive luxuriance of this very ornamental climber.

*Thalictrum flavum*. Apparently rare. Oram's Harbour, Winton; Mr. W. Whale! Near Southampton and at Shawford; Miss G. E. Kilderbee. Hill Head; Mr. W. L. Notcutt. Twyford water meadows; Dr. A. D. White. Near Wickham and Droxford; Pulteney, in Hamp. Rep. Extremely rare in the Isle of Wight.

*Myosurus minimus*. Corn-fields and waste ground. Near Bishop's Waltham, and probably not rare on the mainland of Hants. Very common, and in some years most abundant, in the Isle of Wight.

*Adonis autumnalis*. Corn-fields. Matterley Farm; Dr. Pulteney, in Hamp. Rep. Wonston and Bullington; Rev. D. Cockelton. In several parts of the Isle of Wight, but rare.

*Ranunculus Lingua*. Sowley Pond; Mr. R. Jefferd. In several places in the Isle of Wight, but not general. Water meadows between Lord Rodney's Park and Bishop's Sutton, plentifully; Mr. H. C. Watson.

———— *hirsutus*. By the baths at Lymington; observed on a late visit to this my native town, and during an unsuccessful search for the long-lost *Scirpus parvulus*. Isle of Wight, but not common.

———— *parviflorus*. About Lymington and Southton, in various places. Andover; Mr. W. Whale. Very frequent in the Isle of Wight.

———— *arvensis*. Common in the county. Much too abundant in the Isle of Wight in the corn-fields of our slovenly farmers.

† *Helleborus viridis*. At Langrish, near Petersfield; Miss G. E. Kilderbee!!! but I am not quite satisfied that it is truly wild there. Wood at Tigwell, near West Meon; Miss E. Sibley!! I have heard of other stations, either for this or the following species, in the neighbourhood of Petersfield, but am not yet sufficiently informed on the subject to communicate them here.

———— *foetidus*. Truly wild but not common in our vast beech woods, called in the county "hangers";\* where it occupies the steep sloping sides of the chalk hills, as I have seen *H. niger* do those of the Apennine and Austrian Alps. Selborne, as noticed by White.

\* In this word the *g* is pronounced as if belonging to the second syllable, han-ger, not to the first, as in its more commonly known meaning.

*Aquilegia vulgaris*. Woods and copses, also in furze brakes in places innumerable in the county. Truly wild in upland situations; rarer and perhaps generally naturalized in the lower more enclosed country. Bordean. Near Hambledon; Dr. Pulteney, in Hamp. Rep. Sinkhorn's Coppice, Otterbourne; Miss A. Yonge. Near Fordingbridge; Miss May. About West Meon, with white, red, and blue flowers; Miss E. Sibley. Hockley; Miss L. Legge. Wherwell Wood, near Andover; Mr. Whale. In various parts of the Isle of Wight; truly indigenous.

†? *Delphinium Consolida*. Corn-fields occasionally, but rare. Near Andover; Mr. W. Whale. Very rare in the Isle of Wight, and probably brought in with seed corn.

‡ *Aconitum Napellus*. Naturalized in wet ground in a few places both in the county and Isle of Wight; but certainly this alpine plant is nowhere native in Hampshire. Near Warnford; Rev. E. M. Sladen.

†? *Berberis vulgaris*. Pinglestone Down, near Old Alresford; Mr. J. Forder! but not having yet seen the station, I cannot say whether this shrub is indigenous there or not. Very rare in the Isle of Wight, and I think certainly *not* wild in its only locality, a field hedge near Thorley.

*Nymphaea alba*. Not, I believe, rare on the mainland of the county, though with the following unknown to the Isle of Wight in a wild state. Abundant with *Isnardia palustris* in a pool just out of Brockenhurst towards Lyndhurst. Ditches near the Grange Farm at Gomer Pond, Gosport. Near Titchfield and Romsey; Dr. Pulteney, in Hamp. Rep. Newbury Common, near Hurstbourne; Miss Hadfield! Cultivated for ornament in the Isle of Wight.

*Nuphar lutea*. Pool at Embley, near Romsey, 1844. Boarhunt Mill; Dr. Pulteney, in Hamp. Rep. Unknown in the Isle of Wight, though I have no reason to suppose it rare in the county generally.

*Glaucium luteum*. Common on the Hampshire coasts, on both sides of the Solent.

*Chelidonium majus*. I mention this plant because though common in most parts of England, as well as on the main land of Hants, it is decidedly the reverse in the Isle of Wight, where, if it cannot be called exactly rare, it is at least extremely local.

*Papaver hybridum*. Frequent and sometimes abundant in the Isle of Wight, and probably on the mainland of Hants. All the other species, excepting *P. somniferum*, are common weeds throughout the county. The latter comes up copiously at Ventnor, Isle of Wight, wherever the ground is disturbed for building, with single, full or

double, white or purple, flowers. These flourish for a season, and then disappear till a new crop is brought to light by the same artificial agency.

*Corydalis claviculata*. In woods, thickets, and on moist shady banks, both on the main and Isle of Wight, but not common. Plentiful near Netley Abbey, and elsewhere about Southton. At Sowley Pond; Mr. R. Jefferd!

*Fumaria capreolata*. In the Isle of Wight, pretty frequently. Most likely not rare on mainland, Hants, but I have not myself yet remarked it.

*Matthiola incana*. Abundant and truly wild on cliffs of chalk and green sand on the southern and western coasts of the Isle of Wight, firmly rooted on the often perpendicular face of the naked chalk rock, defying all the blasts and storms of winter to dislodge it, and scenting the evening breeze with its delicious fragrance in spring and early summer. Mr. Babington describes the flower as "dull pale red;" I find them, on the contrary, of a full purple, with a rich velvet-like lustre, though liable to vary in intensity. He has very properly marked the wild plant as perennial, many stems occurring of several years' growth, as thick as the wrist and perfectly ligneous.

† *Cheiranthus Cheiri*. Common in the county and island on old walls and buildings, but not looking like a true native.

† ? *Barbarea præcox*. Quite a weed in very many parts of the Isle of Wight; on banks, fields, and even in woods, the ground being often completely yellow with it. It is known here as "bank-cress," and is very superior to *B. vulgaris* as a salad herb, from its greater pungency and more delicate flavour. The latter is a far less common species here, and chiefly confined to sides of streams and ditches; the other is said to have been originally introduced to England, but is now as completely naturalized as any of our indubitable natives. I have once or twice fallen in with a specimen of a *Barbarea* having the pods appressed, possibly the *B. stricta* of the 'Manual of British Botany,' but my very few and imperfect specimens, quite out of blossom, have not put it in my power to decide on their identity with this last.

*Turritis glabra*. I searched carefully for this plant, by directions kindly given to me by my friend Mr. W. Pamplin, the discoverer of it in the county, betwixt Froxfield and Privet, but without success, owing doubtless to the want of sufficiently minute indications, which the lapse of many years made it almost impossible for him to afford.

*Arabis hirsuta.* Abundant about Winchester; Dr. A. D. White! Isle of Wight, chiefly at Newport and about Carisbrooke Castle; very local.

*Cardamine amara.* Side of river between Titchfield and Hill Head; Mr. W. L. Notcutt. Absent from the Isle of Wight Flora.

†? *Hesperis matronalis.* Near Warnford; Mr. Vickery. Formerly gathered at Bonchurch, Isle of Wight, I believe by Mr. Dawson Turner; and more recently, at the same place, by my friend John Curtis, Esq., who has figured the specimen in his exquisite work on British Entomology, vol. x., t. 435. I have never yet seen this species myself in the county, and doubt its claim to be considered as native. It occurs plentifully in the grounds at Old Park, in this island, but too manifestly a stray from the flower-border to warrant its admission even as a naturalized species.

*Brassica oleracea.* Very rare at Ventnor, Isle of Wight, but extremely sparingly, in one station only. A specimen or two here and there on the cliffs occasionally.

*Diplotaxis tenuifolia.* Abundant on old walls at Southampton. Not found in the Isle of Wight.

† *Alyssum calycinum.* In plenty in a field near Bury Hall, Alverstoke, on the way across the fields from thence to Privet; Miss L. S. Minchin! The ground was in corn this year when I visited the station, but the plant may reappear after harvest, or when next in lay. It was growing, I understand, with *Camelina sativa*, a curious circumstance, as that plant is thought only to be found in flax-fields with us. On the continent it is not restricted to that crop, the culture of which has long been abandoned in this part of England.

*Cochlearia danica.* Abundant on the flat shore of Stokes Bay. Very rare in the Isle of Wight. On High Down at Freshwater.

†? *Armoracia rusticana.* Meadows and pastures in several parts of the Isle of Wight; in some of its stations having much the look of a native, but seldom flowering in any. More commonly it is found near houses, and was formerly abundant and still maintains its ground in the stiff soil of the Dover at Ryde, but never blossoms there.

*Thlaspi arvense.* Fields in the Isle of Wight, but very local.

*Teesdalia nudicaulis.* Southsea Common; Mr. Hudson! Plentiful on the shore at Anglesea; Miss L. Minchin!!! Abundantly on sandy heaths and commons between Farnham and Petersfield; Mr. W. Pamplin. Not yet observed in the island, but I can scarcely think it is really wanting here.

*Lepidium campestre.* Extremely common in cultivated fields on

hedge-banks and waysides in most parts of the Isle of Wight, and I believe not rare in the county generally.

*Lepidium Smithii*. On banks and dry waste ground in many parts of the main and island. Frequent about Lymington and Southton.

It is remarkable that in framing the specific characters betwixt this species and the last, one of the most obvious and therefore best diagnostic marks has been overlooked by British writers, almost the only ones who could be expected to discover this striking difference in the habit of *L. Smithii*, since it is unknown over the greater part of the continent in a wild state. In *L. campestre* the stem is erect and simple, or copiously and corymbously branched in a very regular manner, the branches being straight and somewhat erect and forming a level top. In *L. Smithii* the usually numerous stems are always either ascending, inclining, or at most suberect, more commonly spreading or decumbent, and when not simple, branched only at the summit, the branches fewer, shorter, curved upwards and divaricate or spreading, not as in the other erect and forming a regular paniculate corymb.

———— *ruderales*. Near Southton, as mentioned in Bot. Guide !!!

*Senebiera Coronopus*. A very common weed under walls and in waste ground throughout the county and island.

———— *didyma*. Rare? In great abundance under walls and on sea-banks along the east shore of the river at Lymington, for perhaps a couple of hundred yards below the last houses. Very rare in the Isle of Wight at East Cowes, and now I fear almost extirpated by building. Andover; Mr. W. Whale! a remarkably inland station for a plant commonly found only on or near the sea coast.

*Crambe maritima*. On the shore at Calshot Castle, where the plant is blanched by covering it with the sand, and so prepared is sent to the London markets. Western Court; Dr. Pulteney, in Hamp. Rep.

*Reseda lutea*. Not rare in the chalky parts of the county. Very common about Andover, and from thence to the Andover-road station. Rather uncommon in the Isle of Wight, where *R. luteola* is, on the contrary, of sufficiently frequent occurrence.

*Viola odorata*. Extremely common in woods, hedges, and thickets, throughout the entire county and Isle of Wight, rare in the latter with blue flowers, they being here usually white or pale lilac. I cannot see the propriety of printing this humble but fragrant favourite of spring in the 'London Catalogue of British Plants' in italics, as a suspected alien. No plant is, in my judgment, more perfectly wild than the sweet violet in this and in many other of our southern counties



at least, though I do not take upon myself to answer for its being so in the more northern ones, having never directed my attention to the point when a resident in those parts of the kingdom. I suspect, however, it is truly wild throughout Europe up to at least  $55^{\circ}$  of latitude; and till within these very few years it was always permitted, as far as I can find, to enjoy its claim to aboriginality unquestioned; nor can I perceive any just cause why such claim should now be set aside after having passed unchallenged from time immemorial.

*Viola hirta*. Common in most parts I believe of the county. It covers the ground in large patches on the most exposed parts of Longwood Warren, near Winchester. Abundant in many parts of the Isle of Wight.

— *palustris*. Cold, wet, boggy thickets in the Isle of Wight, but very local, though abundant where found.

— *lactea*. New Forest, near Boldre. On a heath near Curbridge, Bishop's Waltham (Curbridge Common?). Very rare on heaths in the island.

— *tricolor*, var. *arvensis*. This is mentioned here because it is the only form known to me of this very common plant inhabiting the Isle of Wight or the mainland of Hants. Though many, rich, rare, and lovely are the wild flowers of the south, we cannot here gaze or recline on those "pansied" banks which breezes fresher than our own fan into bloom and beauty in the north. The wild heartsease is here an insignificant corn-flower, the least attractive of any in the chaplet on the brow of Ceres.

*Frankenia laevis*. Abundant near Portsmouth on banks and in flat, salt-marsh ground. In similar places and on chalk cliffs in the Isle of Wight, but very local. The leaves are erroneously described as linear, being in truth oblong, and only linear by the revolution of their margins; this part of the specific character should be framed accordingly.

*Parnassia palustris*. This elegant plant formerly grew on a tract of boggy ground, called William's Moor, close to Ryde, but long ago drained and converted into excellent pasture and arable; Mr. J. Lawrence. I have never found it since in any part of the Isle of Wight, or heard of its occurrence within the county.

*Drosera rotundifolia*. Common in bogs, both here and on the mainland.

— *longifolia*. Gomer Pond, in plenty. Embley, near Romsey. In bogs on the New Forest, as all about Tachbury Ower, &c., with *D. rotundifolia*; Mr. W. Pamplin. About Titchfield; Mr.

W. L. Notcutt; and in various other places. Not found in the Isle of Wight.

*Drosera anglica*. Forest of Bere; Dr. Pulteney, in Hamp. Rep. *Tamarix gallica* (*anglica*?). Erroneously introduced as growing at Hurst Castle: and Freshwater must be expunged from the Hampshire Flora, being only known in cultivation as an ornamental shrub within the limits of the county.

N. B. Elatine hexandra and E. Hydropiper grow in Frensham Pond, Surrey, close upon the Hampshire border, and may be reasonably expected to occur in the latter county.

*Dianthus prolifer*. In some abundance on the turfy parts of Ryde, Dover, where I have seldom failed to see it for these last ten years, though not always in equal plenty. First noticed there I believe by C. C. Babington, Esq.

———— *Armeria*. Gravelly and sandy fields; rare. I have one or two mainland stations for this species, but cannot at present refer to my authorities. Very rare in the Isle of Wight, though truly wild there.

†? *Saponaria officinalis*. At Odiham and between Cheriton and Bramdean; Dr. Pulteney, in Hamp. Rep. Freefolk; Rev. G. F. Dawson. I have not as yet seen any Hampshire station for this plant, and cannot pronounce upon the claim of the species to be called wild with us. The tendency in the flowers to become double is so frequent as perhaps to furnish no strong argument against its title to reception when the locality itself is above suspicion. In this island the *Saponaria* is obviously introduced and but very sparingly naturalized.

*Silene anglica*. Abundant in many parts of the Isle of Wight in sandy corn-fields, and extremely plentiful amongst turnips at the close of summer. Of this we have two well-marked forms. 1st. An upright variety, which I call *stricta*, with very erect often simple stem, and erect or diverging branches; the capsules on diverging, not reflexed pedicels. This, which with Mertens and Koch (Deutschland's Flora) I take to be the *S. gallica* of authors, is more commonly met with amongst corn and summer crops, though sometimes with the following later in the year. 2nd. Var. *autumnalis*. Stems diffuse or procumbent, pedicels (in fruit) finally deflexed. This is a large coarse plant, quite unlike the former in habit, with long, straggling, much branched stems, two or three feet in length, and much larger, more spreading leaves; abundant in cultivated (chiefly turnip) fields at the close of summer, flowering on till destroyed by the frost. I can find no structural difference betwixt these two forms beyond those of habit,

which I am inclined to think derive their origin from the season, the coldness and humidity of the late autumnal month producing a succulent and plethoric state of the plant and a greater development of all its parts. I nowhere find the latter variety distinctly mentioned as such, remarkable as it certainly is.

*Silene nutans.* Shores of Stokes Bay, Gosport. Abundant on sandy banks in Sandon Bay, Isle of Wight, and on the brow of a steep precipice above St. Lawrence, where it was first remarked by John Curtis, Esq., author of the beautiful work on British Entomology.

— *maritima.* Abundant in Stokes Bay. Rare in the Isle of Wight at East Cowes, &c. Surely distinct enough from *S. inflata*?

— *noctiflora.* Said to be found at Alverstoke. Brown Down in Stokes Bay; Miss Jane Garrett. I have not yet seen Hampshire specimens, but hope to report it a native ere long.

*Lychnis vespertina.*

— *diurna.* Both these are extremely abundant in the Isle of Wight, though dissevered in many parts of Britain. Surely very distinct as species?

*Spergula subulata.* Isle of Wight, rare, on high gravelly or stony pastures.

— *nodosa.* Wet sandy ground. Rare in the Isle of Wight.

*Alsine peplodes.* Abundant on the Hampshire coasts.

*Stellaria glauca.* Bogs on the borders of Hampshire towards Farnham; Mr. O. Newnham.

*Maenchia erecta.* Profusely, and whitening the ground on many parts of the shore in Stokes Bay. Abundant on many of the Isle of Wight downs, at some hundreds of feet elevation.

*Malachium aquaticum.* Plentiful, but rather local in the Isle of Wight in wet places, damp thickets, &c.

*Cerastium arvense.* Abbotston Downs (near Old Alresford); Mr. W. Pamplin.

[To be continued].

W. A. BROMFIELD.

Eastmount House, Ryde, Isle of Wight,

July 5th, 1848.

*Supposed Scotch Locality for Asplenium fontanum.* By the Rev. W. T. BREE, M.A.

I WISH to put a question to you on the subject of a somewhat doubtful species of British fern. But first of all, having the pen in

my hand to write to you, I cannot resist the inclination I feel to offer you my thanks for your critique on Mr. Andrew Jackson Davis's 'Principles of Nature'\* in the June number (Phytol. iii. 149). Judging from the extracts which you have given from that work, and this is all I know about it, I cannot for a moment suppose that it ever can become popular among the readers of the 'Phytologist,' or even be perused by them without disgust. However, you have done well in warning botanists against such pernicious absurdities; and I cannot but applaud you for having on this occasion dropped the editorial *we*, and for speaking out *in propria personâ*. But now to turn to the fern, which is a more agreeable subject. Are botanists aware of any native habitat of the *Polypodium fontanum* of Hudson (*Asplenium fontanum* of Francis)? or is it not generally believed that this elegant species is no longer to be found wild in Britain, if indeed it ever had a legitimate claim to be considered native? In the first edition of your 'History of British Ferns' you notice the plant, incidentally, as I may say, among your preliminary remarks at p. 4, and give a figure of it at the foot of the page; but it seems to have been entirely omitted in the second and enlarged edition. On a visit a few weeks ago to Lady Maria Finch, at Boxley Abbey, near Maidstone, I observed in her garden a living plant of *P. fontanum*: upon asking the gardener, a very intelligent Scotchman, where the fern had been procured, and remarking at the same time, that, of course, it was of foreign, not British origin, he assured me he received it from a friend in Scotland, who had gathered it in a spot where he had himself previously found it in some abundance. I took down from his mouth in pencil the exact locality for the fern; but regret to say that I have accidentally lost the memorandum, and my memory will not serve me to state even the county in which this rarity is still to be found. The present most unsatisfactory notice, however, may serve to put botanists on the lookout, and may prove the means, perhaps, of reinstating a supposed lost species to its rightful place in the list of British ferns.

W. T. BREE.

Allesley Rectory, July 6, 1848.

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\* I have received a number of letters expressing similar sentiments to those of Mr. Bree, but I am not aware that any others were designed for publication.—E. N.

*Occurrence of Potamogeton rufescens and P. praelongus near Kelvedon.* By E. G. VARENNE, Esq.

THE remark of the Rev. A. Bloxam in the last number (Phytol. iii. 183), that "a botanist may almost every year be finding something new in his neighbourhood," will be acknowledged to be true by most of those who have followed the calling of field-botanist for any length of time. It has often been my lot to wander by the banks of the meandering Blackwater during the last ten or a dozen years, without being able to discover any other *Potamogeton* than *Potamogeton lucens*, growing in abundance in the stream. Circumstances lately induced me to make a more accurate examination of our river pond-weeds, and the result is that *Potamogeton lucens* is really uncommon for about two miles of the course of the river as it surrounds the village of Kelvedon. Its place is supplied by *Potamogeton rufescens*, which presents itself in large masses in the bed of the river. Very few floating leaves are formed under such circumstances, and the flowers are elevated above the surface of the water without these appendages. My attention was first attracted to this circumstance by a plant which I was fortunate enough to discover while in the company of a fellow botanist, Mr. Bentall, in a pond near Mark's Hall, Coggeshall, in which there were as many stems in flower without floating leaves as there were with them. The wingless stipules, equal peduncles, and the form of the leaf, clearly distinguish this variety of *rufescens* from *Potamogeton lucens*. In drying, whether furnished with floating leaves or not, the peduncles, uppermost leaves, and stipules, assume a purplish tint.

There is also at the present time a fine bed of *Potamogeton praelongus* in full bearing in one situation, where it is surrounded by plantations of *Potamogeton rufescens*. The long peduncles and branched habit of *Potamogeton praelongus*, with the remarkable tips of its leaves, and their unequal size, together with the entire submersion of the plant, are abundantly characteristic.

E. G. VARENNE.

Kelvedon, July 11, 1848.

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*Notice of the Discovery of Filago Jussæi near Saffron Walden.*

By G. S. GIBSON, Esq., F.L.S.

THIS plant I gathered four or five years ago, about eight miles from this town, observing a very marked peculiarity in the manner of its growth, but not properly examining it at that time, passed it over as simply a variety of *F. germanica*, and have specimens of it so labelled in my herbarium. My attention was again called to it a short time ago by Joshua Clarke, when on a botanical excursion in Cambridgeshire, and on examining the specimens brought home, and comparing them with those of *F. germanica* from the same locality, I was at once convinced that it was a distinct species, and probably *F. Jussæi* of Cosson and Germain. This opinion has been confirmed by several of our most eminent British botanists, and I have since been informed by one of them that it has been found simultaneously in Dorsetshire and Sussex. The locality for it in this neighbourhood is road-sides and cultivated fields, on a sandy soil, in the borders of Cambridgeshire and Essex. It frequently grows intermixed with *F. germanica*, but always, so far as I have observed, preserves its distinctive characters. Whether or not it is similar to the one called *F. apiculata* by G. E. Smith, and described in a former number of the 'Phytologist' (Phytol. ii. 575), I am unable to decide, for although it appears to agree in some respects with that description, yet in others there is a decided difference.

The following are some of the more striking points by which it may always be readily distinguished from *F. germanica*. Heads with much fewer flowers, often not half as many as in *F. germanica*, generally less cottony, particularly the young heads, which are overtopped by the leaves. Flowers much larger, rather paler in colour, and sharply pentagonal. Involucral scales rather broader. Leaves broader, not spear-shaped, as those in *F. germanica* always are, but spatulate, broadest near the end, apiculate, narrowed towards the base; more loose and spreading on the stem. Stem much more branched, branches spreading, nearly horizontal in old plants, slightly ascending in young ones. Probably it will be found to be not an uncommon plant on light soils.

G. S. GIBSON.

July 12, 1848.

*On the Geographical Distribution of British Plants.*

By the Rev. W. H. COLEMAN, M.A.

MUCH valuable advice has been given to the authors of local Floras in the several works of Mr. Watson, and the present writer has largely profited by his suggestions. Having been long engaged in a work of this nature, and therefore having, as he trusts he may say without presumption, acquired some experience, he has thought that some account of the method pursued by himself and his colleague may be acceptable to the readers of the 'Phytologist,' and useful to those who shall hereafter be engaged in any similar work.

In collecting materials for a Flora of an English county, it was soon discovered that the work would be extremely imperfect, as a view of the botanical productions of the county collectively, unless not only diligent search had been made for the *rarer* species in every part of it, but also some security could be given that the prevalence of the plants presumed to be *common* was uniform throughout it. Some years after observations had been commenced, it was found that so little progress in this respect had been made, that if the materials had then been published, the work could hardly have been called a Flora of the county, but merely one of two or three of the principal towns, with some scattered records of the rest of the county. It was no satisfaction, however it might have proved an excuse, to observe that many others of our local Floras were liable to the same objection; and it was therefore determined to seek a remedy for the defect.

The first plan that suggested itself for this purpose was that of forming catalogues of plants found within a circle of five miles radius round each of the principal towns of the county. But upon tracing these circles on a map it was found that some of them would partially overlies one another; while large tracts remote from any large town would still be excluded. Some plan was therefore sought which should not be liable to either of these objections. And first the purely geometrical one was tried of dividing the whole county into a series of irregular hexagons, by joining the points dissecting the distance between every two adjacent principal towns. This was easily enough done on the map, but was found to be useless in the field, and after some trial was given up. The old political divisions called hundreds were proposed, but found too arbitrary: and unions of parishes were found to give unnatural districts difficult to determine in the field. It was therefore at length determined to adopt some purely natural divi-

sion, which might readily be marked upon any good map at home, and easily be recognized by a good eye in the field. And a system of division founded upon the river drainage was preferred to all others, as on the whole most likely to give useful botanical results, and as falling in with Mr. Watson's system of provinces, of which indeed it was the carrying out into particulars. After some consideration, and some changes, the county was divided into twelve districts, averaging about fifty statute square miles each, and consisting as far as possible of the basins, or definite portions of the basins, of the principal rivers.

All former observations on the frequency of the more ordinary species were now considered as relating exclusively to the home district; and for the others, when catalogues could not be obtained from resident correspondents, expeditions were undertaken to them for the purpose of ascertaining their common, as well as rare productions. As soon as the number on record in any district approached 400, the still unobserved species which seemed likely to occur there were formed into lists of desiderata. Some curious features, which had formerly escaped notice, or were matters of mere surmise, now began to come to light, or to receive confirmation. *Digitalis*, *Conium*, *Potentilla argentea*, *Artemisia vulgaris*, *Carex paniculata*, and others which the experience of the home district alone would have set down as common, were now found to be either wholly wanting or very scarce in some of the districts: while others, as *Trifolium fragiferum*, *Ophrys apifera*, *Carex axillaris*, &c., which home experience had seemed to prove rare, were found to be widely distributed over the county: and scarcely a fourth part of the whole Flora was found to be so universally distributed as to occur in every one of the twelve districts. Another advantage of the plan was that the desire to obtain as complete a list as possible for each of the districts induced repeated excursions into most of them in succession; whereby not only were their recorded Floras increased, but new species and new stations for the rarer ones were frequently brought to light: and that correspondents, having a local interest in the reputation of their respective districts, were stimulated to increase their diligence. And thus, though the more distant districts could not be expected to be equally well explored with those nearer home, the Flora of the county is at least in a great measure rescued from the reproach which it would otherwise have been susceptible of, and can no longer be charged with offering a single brick as a specimen of the whole house.

In fact, the plan of subdivision above detailed has been found to be attended with so much advantage, that the adoption of one of a similar



kind is strongly recommended to all botanists about to undertake the task of compiling county Floras. For experience has shown that it is almost impossible for any one person, however active, satisfactorily to examine an area of more than four or five miles radius round his own residence, unless he has unlimited command of time. Any county therefore proposed to be examined should be divided into as many districts, of from fifty to eighty square miles each on the average, as it conveniently and naturally can be. Even much smaller districts than this would often be desirable, if there were any reasonable probability of obtaining catalogues of their productions. But as there are comparatively few botanists in any one county who are capable of forming such catalogues, and the editor-in-chief will generally be driven to rely very much on his own observations, he will be forced to diminish the number and increase the size of the districts beyond what would be advantageous if practicable.

It may be useful to add an account of the method pursued in cataloguing the plants of a district. A book was prepared containing the county list in single columns, with twelve ruled columns on the same page, corresponding to the number of districts. Some promising spot, as central as possible within any district, was then repaired to, and the observer started on his walk with a small vasculum in hand, in which he deposited a small characteristic "pinch" (no larger than was absolutely necessary for identification) of every species that occurred. When the box grew full, or a convenient halting-place was reached, the prepared list was taken in hand and deliberately read through: and as often as it occurred to the memory that such a species had been gathered, a figure corresponding to the number of the district was entered in the proper column opposite to its name. When the list had thus been gone through seriatim, the collecting box was opened, and its contents singly but rapidly removed; and if it was doubted concerning any of them whether or not it had been recorded, the book was referred to. This was seldom necessary with a tolerable memory, not more than 1 per cent. being generally omitted in the first marking. The box being emptied, the walk was renewed and a second collection made of everything not previously recorded. In this manner as many as 300 species have been catalogued in a single day. If two hunt together this process is much expedited, and in default of leisure of the principal, at any particular season, the services of a beginner may be made use of, to bring or send from the district a fragment of every species he may meet with.

After a considerable number (about 400) had been catalogued, a

"desiderata list" was formed for each district. These were arranged in six classes, which were found very natural and convenient in practice; namely, 1. Arvenses, *i. e.*, corn-field plants; 2. Pratenses, meadow and pasture plants; 3. Sylvestres, or wood plants; 4. Sepincolæ, hedge and road-side plants; 5. Domesticæ, plants growing on walls or about houses; and 6. Aquatiles, marsh and water plants. With these lists in hand especial search was now made for the missing species in their respective habitats, and as they were found, they were struck out. It is obvious that these, escaping as they did the first researches, must in general have been of less frequent occurrence than others found at an earlier period; though some latitude was required for season, or the inconspicuous nature of the plants.

The data acquired in the course of the investigation of the Flora of the county in question on the above plan, may serve to correct the statement of Mr. Watson (in one of his works, which the writer has not now at hand to quote with precision), to the effect that a single square mile will be found to contain half the species of a county. This, however, will be found to be a considerable overstatement, unless a square mile be selected containing every variety of soil and situation. If it be assumed that a certain number ( $f$ ) of species are common to every square mile of a county, and that the remainder are uniformly distributed over it, so that every additional square mile should add so many additional species to the Flora of the list; then if  $F$  and  $F'$  be respectively the numbers in the Floras of the whole county (containing  $a$  square miles), and of any portion of it containing  $n$  square miles:

$$\text{it may easily be shown that } f = \frac{a F' - n F}{a - n}$$

For the particular county in question this formula gives 502 species common to each square mile; the whole Flora being about 900: so far more than confirming Mr. Watson's estimate. But there are two things which entirely vitiate the above calculation. For first, the law of distribution assumed makes all but the most common species equally rare, which every botanist knows to be contrary to the truth. And secondly, the square mile has been assumed to be an average one: that is, to contain clay, sand, gravel, limestone, peat, &c., arable, pasture, heath, wood, waste, streams, bog, marsh, standing water, &c., in similar proportion to the county at large: all of which it is needless to say can hardly be found in one and the same square mile. So that instead of five-ninths of the Flora being common to every square mile, the writer's experience has been that scarcely one-fourth is common to every fifty square miles. And his opinion is, that if a square mile

be taken at a venture, its Flora may be considered as a good one if it amount to as many as 200 species.

W. H. COLEMAN.

Ashby-de-la-Zouch, Leicestershire,  
July 14th, 1848.

[The author of the foregoing paper was desirous of its being published anonymously, fearing that it might be considered somewhat commendatory of the 'Flora of Hertfordshire,' a work to which he obviously refers, and one which is well known to be partially, perhaps principally, his own production. Botanists will, however, at once perceive that Mr. Coleman's valuable remarks are merely explanatory, not laudatory, and that there is no necessity whatever for my departing so far from a positive rule as to publish them without his name.—*E. N.*]

*Characters of Malva verticillata and Malva crispa.*

By HEWETT C. WATSON, Esq.

IN the second volume of the 'Phytologist' (Phytol. ii. 936 and 973) are some remarks on the *Malva verticillata* and *crispa*, between which there was difficulty of showing good distinctive characters. Those of the fruit, explained by Mr. Borrer and Sir William Hooker, are true so far as they go; but they are little obvious unless in the perfectly mature state, previous to which the characters assigned for *M. verticillata* apply to the fruit of *M. crispa*. The distinctions afforded by the ramification, as pointed out by Mr. Motley, are very obvious in examples of the two species now growing in my garden within two yards of each other, and originally raised in flower-pots in a frame, under conditions of soil, moisture, &c. equalised as exactly as could be. Both species grew into upright simple stems, in their early stage. After they were turned out of the flower-pots into the open ground, their growth became much more luxuriant and branching. The plants of *M. crispa* continued to grow principally upwards by the elongation of the stem, which produced distant branches, also tending upwards at an angle of thirty degrees, more or less. The plants of *M. verticillata*, on the contrary, threw out several branches near the surface of the ground, divaricating from the central stem at an angle of fifty degrees, more or less, and giving that verticillate aspect to the ramification which the specific name may have been intended to denote.

These branches were much stronger on *M. verticillata*, even thicker and longer than the central stem on some of the plants; whereas those of *M. crispa* were comparatively small and short.

Besides the differences above noted and confirmed, I find some others which increase the probability of the two plants being sufficiently distinct as species. The flowers of *M. crispa* are larger, with their petals scarcely exceeding the calyx, and more widely lobed than in the other species; the axis of the fruit is elongated conspicuously above the carpels; the stem almost destitute of hairs. In *M. verticillata* the flowers are smaller, with narrower petals, which are nearly twice the length of their calyx, and the lobes of which do not divaricate like those of the former; the axis of the fruit is broader and shorter, scarcely exceeding the carpels; the stem is sprinkled with stiff hairs, disposed in a stellate form.

H. C. WATSON.

Thames Ditton, July 17, 1848.

*Localities for Botrychium lunaria, and Inquiry respecting Sedum Forsterianum.* By W. THICKINS, Esq.

IN the last number of the 'Phytologist' a new locality for *Botrychium lunaria* in Leicestershire is given, and as the plant is considered to grow but sparingly in Warwickshire also, it may perhaps be worth mentioning that last year I found it abundantly a little beyond Moxhall, on some heathy ground on the right of the turnpike road from Coleshill to Lichfield, and that a few weeks ago I discovered it in a similar habitat near Coleshill Pool, perhaps the same locality as that given in Newman, of which I was unconscious at the time. Last year also I saw it in quantities, though in a very dwarf state, growing with *Viola lutea* in some high pastures on Masson, near Matlock, Derbyshire. I have found it, too, near Wirksworth in the same county.

In your March number, in a remark of yours on *Sedum Forsterianum*, you say "You were not fortunate enough to meet with it at Barmouth, where Mrs. Russell records its occurrence."

The enclosed *Sedum*, which I take to be "*Forsterianum*," is from a plant I brought from Barmouth in 1837, and have had in cultivation ever since. It grew in a very dry, exposed situation, and only in a similar one have I ever prevailed on it to flower. I am therefore doubtful on reading your description of the different *constitutions* of

the two Sedums, whether it may not be "rupestre" after all. The cyme enclosed is the only one on any of my plants this year: it is not nearly so characteristic of "Forsterianum" as the cymes of former years have been, not so compact and hemispherical, but it may be enough so for your practised eye to decide that it really is the plant I hold it to be.

W. THICKINS.

Keresley, near Coventry,  
July 18, 1848.

[The specimen enclosed has lost that distinguishing characteristic of colour to which I have before alluded; but although on this ground I cannot venture to pronounce any confident opinion on the subject, I may state that had not a query been suggested I should have had no idea that the plant differed from the ordinary form of *Sedum rupestre* when grown in a dry and exposed situation, such for instance as a sunny wall. In using the name *Sedum rupestre* I may as well state that I adopt it as conventionally employed by Smith, &c. I have great doubts as to its identity with the *Sedum rupestre* of Linnæus and continental botanists.—*Edward Newman*.]

*Note on certain Monstrosities in Trientalis europæa.*

By W. M. OGILVIE, Esq.

WHILE botanizing on the first of the present month, in Baldoven Woods, about five miles north from Dundee, in company with my friend Mr. Gardiner, we found three monstrosities in *Trientalis europæa*, L. One had two flowers enclosed in one calyx. Another had four, three of which were fully opened. The third had a number of the stamens converted into petals. Thinking that these facts may be interesting to some of your readers, I send them for insertion in the 'Phytologist.'

W. M. OGILVIE.

Castle Street, Dundee,  
July, 1848.

*Occurrence of Mimulus luteus near Brechin.*

By W. ANDERSON, Esq.

DURING last month I collected specimens of *Mimulus luteus* on the muir below the bridge of Dun, about four miles from Brechin. The plant was in great abundance, and perfectly naturalized.

Mr. Kerr, of Montrose, has observed it growing near Dun Mill, situated near the Brechin road, for the last five years, and here also it is most abundant and perfectly naturalized.

This plant is rapidly spreading itself over the country, and now appears in some places to be quite indigenous. Although we are well aware of its native origin, and know that in Scotland it must have originally been an outcast from a garden, yet I think its claims to a place in the British Flora are now fully equal to those of *Impatiens noli-me-tangere* or *Iberis amara*.

I have forwarded these observations for publication in the 'Phytologist' because I regard the record of plants, known to be introduced, thus naturalizing themselves, as affording additional information on the geographical distribution of plants.

WILLIAM ANDERSON.

Dun Nursery, Brechin,  
20th July, 1848.

[From Mr. Anderson's observations, and several others which I have met with in different journals, I am quite inclined to agree with him in regarding *Mimulus luteus* as now "perfectly naturalized" in Britain. The same may I think be said of the originally American *Impatiens fulva*. The *Mimulus* and the *Impatiens* are now to all appearance so firmly established that I believe it would be difficult, if not impossible, for man to eradicate them. Thus we have two plants whose exotic origin is admitted by all, taking up their abode amongst us, freely multiplying their kind, and bidding fair to maintain their position against all casualties. These instances certainly lead to the belief, if not to the conviction, that very many of our now-unquestioned natives may have had a similar exotic origin, and we must anticipate that the botanists of future generations will accept the *Impatiens* and the *Mimulus* as equally indigenous with those species whose introduction bears an earlier and therefore obscurer date. I do not see why we should make laws to exclude plants because we fancy we have witnessed their introduction: the loss of a rood of

ground on one coast and the gain of a rood on another, are no less a loss and a gain because they have taken place before our eyes.—*Edward Newman.*]

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#### BOTANICAL SOCIETY OF LONDON.

*Friday, July 7th, 1848.*—John Edward Gray, Esq., F.R.S., President, in the chair.

The following donations were announced :—

'Proceedings of the Linnean Society of London,' from November 16th, 1838, to March 7th, 1848, presented by that Society ; Vols. 1, 2 and 3 of 'Transactions of the Zoological Society of London,' presented by that Society ; 'Proceedings of the American Philosophical Society,' presented by that Society ; a parcel of specimens from St. Mary's, Azores, presented by Thomas Carew Hunt, Esq., Her Majesty's Consul at St. Michael's. Among the specimens are eight species not before ascertained to grow in the Azores, but all found also in south Europe. British plants had been received from W. H. Purchas. Dr. Semple, F.G.S., of Torrington Square, and John Moore, Esq., Surgeon, of Leicester, were elected members.

Mr. Thomas Sansom presented a specimen of *Schistostega pennata*, *H. & T.*, collected by him in a cave by the side of the mountain road from Capel Cerig to Llanrwst, in May last.—*G. E. D.*

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#### THE DUNDEE NATURALISTS' ASSOCIATION.

*3rd May, 1848.*—Mr. Ogilvie (the Secretary), in absence of the President, in the chair.

The 'Flora of Leicestershire' was announced as a donation from the author to the Association, and a parcel of plants was announced from Mr. Ogilvie.

Mr. Ogilvie read an interesting paper, being an account of three days' botanizing on the Sidlaw hills. The more interesting plants found by Mr. Ogilvie were the following: *Andræa rupestris*, *Dicranum heteromallum*, *Diphyscium foliosum*, *Fontinalis antipyretica*, *Buxbaumia aphylla*, *Hypnum triquetrum*, *Neckera crispa* (barren), *Orthotrichum rupicola*, *Polytrichum nanum*, *Trichostomum heterostichum*, *T. canescens*, *β. ericoides*, *Arthonia Swartziana*, *Stereocaulon condensatum*, *Parmelia pulverulenta*, *Lecanora ventosa*, *Bæomyces*

roseus, *B. rufus*, *B. placophyllus*, *Peltidea venosa*, *Hysterium conigenum* (new to the county), &c.

A specimen of *Bellis perennis* appeared on the table from Mr. Lawson, the flower-head of which was oblong, and of extraordinary size. A note accompanied the specimen, mentioning that it had been gathered on the Law hill of Dundee, by Mr. William Hill.

6th June, 1848.—The President in the chair.

A paper by Mr. Anderson was read, communicating the two following new stations for rare plants. Specimens of both were exhibited.

*Vinca minor*. In a wood to the westward of the farm-house of Barrelmill, about two miles from Brechin, abundant and naturalized.

*Carex caespitosa*. Brechin Castle Terrace.

Mr. Lawson communicated the following notes of new localities for rare plants in the county :—

*Asperula odorata*. Linlathen.

*Aquilegia vulgaris*. Linlathen, naturalized.

*Primula veris*. Den of Duntrune, confined to a dry bank, *P. vulgaris* being abundant in the moist and low grounds, but not mingling with *P. veris* on the dry ground referred to.

*Chenopodium Bonus-Henricus*. Road-side at south entrance to Den of Duntrune, beside the *Fragaria elatior* station. West side of Magdalen Yard Green.

*Origanum vulgare*. Very abundant in Den of Balruddery.

*Luzula multiflora*, Lej. Linlathen.

*Polemonium caeruleum*. Linlathen, naturalized.

*Petasites vulgaris*. With white flowers, near Mains Castle.

*Sedum Telephium*. Inner side of a hedge by the road-side between Stobswell tavern and the Den of Mains. On a bank by the way side, a short way above Adam's public-house, at Strathmartine. Only naturalized in both stations.

*Parmelia physodes*. In fruit on trees of a clump at the road-side between Adam's public-house at Strathmartine, and the Sidlaw hills.

A paper was read by Mr. Ogilvie, being a second visit to the Sidlaw hills: he exhibited specimens of the plants collected, for some of which new stations were mentioned, viz.:—

*Chenopodium Bonus-Henricus*. Road-side between Camperdown and Dronley.

*Carum Carui*. Road-side near Balbenckly farm-house.

Mr. Ogilvie likewise mentioned that he found the *Alchemilla alpina* on the Sidlaw hills, where it was first found by Mr. Lawson, in 1844.



4th July, 1848.—The President in the chair.

A paper by Mr. Gorrie was read, entitled "The Spring of 1848 ; its Climate and Vegetation ;" in which he traced clearly the progress of vegetation during the bygone spring, and the effects of the season upon it. These observations were prefaced by some general remarks on the subject of great interest.

Mr. Ogilvie exhibited a specimen of *Trientalis europæa*, showing a monstrosity in the flower (See *Phytol.* iii. 223). He likewise mentioned having gathered *Pyrola minor* in Baldovan woods, with white flowers.

Mr. Wyllie exhibited a specimen of *Pyrola media* from the Sidlaw hills, being a new station for the plant. He likewise mentioned the occurrence of *Dianthus deltoides* at the Mains, two miles from Dundee.

Mr. Lawson presented a specimen of *Statice Armeria*, with the flowers elevated on footstalks. He gathered the specimen on the rocky coast between Arbroath and Auchmithie.

John Ord, Esq., of Melmerby, near Ripon, and Mr. George Milne, Jun., Dundee, were elected Fellows ; and Messrs. George Palmer, A. Low, and James Wyllie, Dundee, were elected Associates.—*G. L.*

*Notice of 'The Plant ; a Biography. In a Series of Popular Lectures. By M. J. SCHLEIDEN, M.D., Professor of Botany to the University of Jena.'* Translated by ARTHUR HENFREY, F.L.S., &c., Lecturer on Botany at St. George's, Hospital, London, Author of 'Outlines of Structural and Physiological Botany.' With five coloured plates and thirteen wood-engravings. London : H. Baillière, 219, Regent Street. 1848.

It is really refreshing to find that there still exist in Germany naturalists of no mean reputation, whose labours demand and really deserve a notice of a very different description from that elicited by the ravings which, dignified by the high-sounding title of *Physio-philosophy*, were recently imported from that modern cloud-land, and published here under the auspices of one of our learned societies ; and it is also gratifying to see that we possess an English botanist, not only capable of understanding, but able, as well, to render into intelligible and not inelegant vernacular, a popular production of one of the most distinguished phytologists of the present day. We do not say that Schleiden's new book is by any means what we expected to find it ;

nor can we say that we think it what it ought to have been; still it is a step, and an important one, in the right direction—that of popularizing one of the most pleasing branches of Natural History. We are especially thankful to Schleiden for the following protest against certain insane nothings which have already been exposed in these pages. He says:—

“True to my own convictions, I have kept free from all the pratings of the physio-philosophers of the Schelling school, and I am firmly persuaded that science has no need of these fopperies to make it appear interesting to the uninitiated. Humboldt in his ‘Views of Nature,’ Dove in his masterly ‘Lectures on the Climate of Berlin,’ have proved that science may really appear lovely and captivating, without adorning herself with the false tinsel of those conscious or unconscious falsehoods, which would substitute poetry for thought, imagination for knowledge, or dreams for truths. I have endeavoured to adorn these essays with as many graces as my imperfect æsthetic culture enabled me to impart, but that it has not been my intention to enter the lists with those masters of language, need scarcely be mentioned. I believe, however, that if men of science would more often seek to introduce truth into society, in fair attire, the path of that intolerable, mystical and pretentious, empty chattering, would be more effectually arrested than by any rational argumentation against it.”—p. 2.

From a casual glance at its contents, Schleiden’s book would at first sight appear, like the Irishman’s letter, to treat “*de omnibus rebus et quibusdam aliis*,” many of the said things seeming to bear about as much relation to Botany as to the French Revolution. For example, we have one lecture upon ‘The Eye and the Microscope,’ another ‘About the Weather,’ and two in reply to the question ‘What does Man live upon?’ This diversity of subjects, however, upon further acquaintance with his pages, is seen to be only a part of the author’s plan, and, in connexion with the more purely botanical lectures, it is skilfully rendered subservient to the aim declared in the following extract:—

“My chief aim was, in fact, the satisfaction of what may be called a class-vanity. A large proportion of the uninitiated, even among the educated classes, are still in the habit of regarding the botanist as a dealer in barbarous Latin names, a man who plucks flowers, names them, dries and wraps them up in paper, and whose whole wisdom is expended in the determination and classification of this ingeniously collected hay. This portrait of the botanist was, alas! once true, but it pains me to observe, that now, when it bears resemblance to so

few, it is still held fast to by very many persons ; and I have sought, therefore, in the present discourses, to bring within the sphere of general comprehension the more important problems of the real science of Botany, to point out how closely it is connected with almost all the most abstruse branches of philosophy and natural science, and to show how almost every fact, or larger group of facts, tends, as well in Botany as in every other branch of human activity, to suggest the most earnest and weighty questions, and to carry mankind forward beyond the possessions of sense, to the anticipations of the spirit.”—  
p. 1.

To this end, instead of treating plants as so many independent beings, isolated from all other natural objects, the author traces their intimate connexion with the rest of organic and inorganic creation—with the soil to which they are attached, the air which surrounds them, the water in which, as a convenient vehicle for absorption, the various matters necessary for their nutriment are contained, and even with the animal world, which derives from the vegetable kingdom so large a portion of its sustenance. He says :—

“ The vegetable world, if it be but looked upon as something more than the materials for a herbarium, offers so many points of contact to the human race, that those who devote themselves to its study, instead of having to complain of want of material, become oppressed with the multitude of interesting questions and problems which crowd upon them. The different subjects of consideration may be conveniently arranged under four aspects ; 1stly, the condition of the plant itself as a question of scientific inquiry ; 2ndly, the relations of the individual plants to each other ; 3rdly, the relations of plants as organisms to the organism of the whole earth ; and 4thly, the relation of the human race to the vegetable world. But since each of these four relations is fulfilled by the plant at one and the same time, it is infinitely difficult, if not impossible, to keep each aspect clear and unmixed ; and when we enter upon one of these relations with the desire to subject it to closer investigation, we are always involuntarily constrained, sooner or later, to direct our attention to the rest, and to draw them within the circle of our researches. Though we establish upon these questions, according to their order, the following branches of study : *Theoretical*, or Pure Botany ; *Systematic* Botany ; *Geographical* and *Applied* Botany ; yet not one of these can be treated from its own principal point of view alone, if it would lay claim to a scientific or profound character ; still more difficult is it, however, to keep strictly within the boundaries of these four divisions when the object in view

is not dry scientific teaching, but a lively demonstration of the more important points. In the following essays, therefore, the division into these four branches can only be adopted to a limited extent, and a freer treatment becomes necessary from the abundance of material which continually allures us to turn aside from our path, to gather here and there a bright or fragrant flower ; or the companionship in which we wander through the land of science, induces us oftentimes to leave the straight but dusty and fatiguing high road, now to pursue our course through lanes which wind among pleasant meadows, now to explore a shady forest path."—p. 3.

Plants being built up of exceedingly minute cells or vesicles, of various forms and as varied contents, it is evident that a thorough examination of their internal structure should precede all other considerations. It is to a careful investigation of the minute organized constituents of plants that we owe the immense advances in Botany as a science, which have so completely distanced the labours of its early cultivators, whose performances were the more valuable in proportion as they employed in their researches that instrument to the improvements in the construction and mode of using which modern naturalists owe much of their pre-eminence. Thus we see that a preliminary chapter on the microscope, in connexion with the eye as the organ of vision, is perfectly relevant to the more immediate subject of the succeeding lectures. Of sight, the author well observes, that "it is the sense which originally introduces and unceasingly expands our whole knowledge of the corporeal world, and we may, therefore, with great propriety, call it the Sense of the Naturalist ;" for, in the words of Seneca, appropriately used as the motto to this lecture,

"Oculus ad vitam nihil facit, ad vitam beatam nihil magis."

The second lecture relates to "The Internal Structure of Plants." And here, contrasting the comparatively trifling results of the most boasted labours of man, effected with so much toil and such extensive preparation of material and machinery—contrasting these with the stupendous and infinitely varied works of Nature, produced by the simplest causes and resulting from numerous combinations of the simplest means ; the author remarks that "we need not ascend to the stars to recognize how little Nature requires to the unfolding of wonders:" and continues,—

"Let us tarry a moment with the vegetable world. From the slender palm, waving its elegant crown in the refreshing breezes, high

aloft over the hot vapours of the Brazilian forests, to the delicate moss, barely an inch in length, which clothes our damp grottoes with its phosphorescent verdure; from the splendid flower of *Victoria regina*, with its rosy leaves cradled in the silent floods of the lakes of Guiana, to the inconspicuous yellow blossom of the duck-weed on our own ponds;—what a wonderful play of fashioning, what wealth of forms!

“From the six-thousand-years-old Baobab, on the shores of Senegal, the seeds of which perhaps vegetated before the foot of man trod the earth, to the fungus, to which the fertilizing warmth of a summer night gave an existence which the morning closed—what differences of duration! From the firm wood of the New Holland oak, from which the wild aboriginal carves his war-club, to the green slime upon our tombs, what multiformity, what gradations of texture, composition and consistence! Can one really believe it possible to find order in this embarrassing wealth, regularity in this seemingly disorderly dance of forms, a single type in these thousandfold varieties of habit? Till within a few years of the present time, indeed, the possibility was not yet conceived, for as I have before remarked, we may never expect to be enabled to spy into the mysteries of Nature until we are guided by our researches to very simple relations. Thus could we never attain to scientific results respecting the plant till we had found the simple element, the regular basis of all the various forms, and investigated and defined its vital peculiarities. By the help of the improved microscopes we have at last advanced far enough to find the point of departure of the general theory of the plant.

“The basis of the structure of all the so very dissimilar vegetables is a little closed vesicle, composed of a membrane usually transparent and colourless as water; this botanists call the ‘cell,’ or ‘vegetable cell.’ A review of the life of the cell must necessarily precede the endeavour to comprehend the whole plant, nay, it is as yet, properly speaking, almost the only really scientific part of Botany.”—p. 42.

The author then, with the aid of coloured figures, enters upon a more minute history of the cell, as the foundation of all the tissues which go to make up the infinitely varied forms of plants; describing its appearance, contents, and mode of reproduction—each cell having the property of forming within itself a number of other cells, each of which is also endowed with the same property—and showing in what manner the vascular and woody tissues all proceed from the simple cells which are the primitive form of vegetable structure.

"We may regard the cell as a little independent organism, living for itself alone. It imbibes fluid nutriment from the surrounding parts, out of which, by chemical processes which are constantly in action in the interior of the cell, it forms new substances which are partly applied to the nutrition and growth of its walls, partly laid up in store for future requirements; partly again expelled as useless and to make room for the entrance of new matters. In this constant play of absorption and excretion, of chemical formation, transformation and decomposition of substances, especially consists the life of the cell, and, since the plant is nothing but a sum of many cells united into a definite shape, also the life of the whole plant.

"These cells in the course of their development become crowded closely together, and thus form the whole mass of the plant, the cellular tissue, which, however, may be divided into three principal classes of tissue, according to the different forms of the cells, and more especially according to their importance to the life of the plant."—p. 45.

One of the most curious things connected with the cell-structure of plants is the power possessed by those minute bodies, which all owe their origin to the same constituents, of forming the most varied substances in their interior, which substances may be primarily divided into such as are soluble in water and such as are insoluble. To the former class belong albumen, gum, sugar, and the acids; and to the latter the fatty and aromatic oils. The most remarkable of these substances is starch, whether regarded as playing a most important part in the nutrition of the animal kingdom, for which purpose it is stored up in great quantity in various parts of the plant, but more especially in the roots, tubers, seeds, fruits, and more rarely the pith; or as affording the only known mark of distinction between the chemical composition of the elementary tissues of plants and those of animals, since it occurs in the former in addition to the oxygen, hydrogen, carbon and nitrogen common to the two kingdoms.

In the lecture upon "The Propagation of Plants," the author, after referring to the almost infinite forms of animal life, all which, directly or indirectly, derive their sustenance from the vegetable world, proceeds to develop his own views of the means provided for the reproduction and multiplication of organisms upon which depend the very existence of so large a proportion of the inhabitants of our globe: and says—

"That this may not be effected by a simple, well defined form of multiplication, as in the higher animals, is in itself evident, and be-

comes still more so when we observe that mankind and most animals draw upon those parts of the plants for their nourishment, which we usually consider to be the peculiar organs of reproduction: I mean the seeds."—p. 63.

After reverting to the power possessed by the individual cell of forming new cells in its interior, and thus of propagating itself, the author proceeds—

"Now the newly-formed cells have also this peculiarity, they grow and arrange themselves conformably to the cell in which they originate. Thus is the power given to all plants to develop new plants out of any of their cells, when these come to be placed in favourable circumstances, and by this power is explained the facility with which almost all plants may be multiplied."—p. 65.

To this power is referrible the production of buds upon various parts of certain leaves, whether separated from, or while remaining attached to the stem; upon stems, in the axillæ of the leaves; and other irregular modes of propagation: and equally referrible to it is the regular mode by the production of the reproductive bodies known as spores and seeds; which may be explained by the fact that—

"Every plant produces within itself a definite number of single, free, unconnected cells, which at a certain epoch spontaneously separate from the plant. It is the peculiar character of those plants which have true leaves, to produce these cells only in the interior of the leaves, which at the same time often assume a very different form, as for instance, in the stamens. Another condition is also worthy of remark. Only in the very lowest plants, flowering wholly under water, is the propagative cell naked; in all others it is invested with a peculiar substance, which has not yet been chemically examined, but is mostly yellow and very indestructible. \* \* \* Now these cells are especially destined to the reproductive function, since from every one of them is a new plant developed. An essential distinction, however, occurs in this development; one, indeed, recognized at an early period, and so exclusively regarded, that the higher agreement was altogether overlooked."—p. 69.

In one mode of the development of these reproductive cells, that which obtains in all the plants comprehended by Linnæus in his class *Cryptogamia*, they are at once scattered upon the earth, or in the water, wherever the new plants are to grow. And then,

"Either the whole cell is gradually transformed into a new plant, new cells originating in it and taking its place, in these others, and so on, which is the case in the Algæ, Fungi, Lichens, and part of the

Liver-mosses; or the cell expands into a longish utricle or tube, but only one extremity of this tube becomes filled with cells, which gradually grow up into a new plant, the remaining portion of the cell, meanwhile, decaying; this is the case in the remaining Liver-mosses, the Mosses, Ferns, Lycopodia and Equiseta. \* \* In all these Cryptogamia the reproductive cells are called *spores*, or germinal grains."—p. 70.

In the Phanerogamia, or flowering plants, the operations of reproduction and germination are much more complicated. The reproductive cells are called *pollen*, and are formed in those peculiar modifications of leaves called the *stamens*. Here, instead of at once falling to and germinating upon the ground or in the water, the cells require the intervention of the reproductive apparatus known as the ovary, style and stigma. In the hollow part of this apparatus, named the ovary, are little protuberances formed of cellular tissue,—the seed-buds or ovules, and in each of these is a large cell, or the embryo-sac.

"At the flowering period the pollen falls upon the stigma, and then commences the development of the reproductive cells. Each one extends itself into a long filament, exactly as in the Cryptogamia, and in this form penetrates to the cavity of the germen, to enter one of the seed-buds, and finally, into the embryo-sac. The extremity which has passed in now becomes filled with cells, and these develop forthwith into a perfect, though as yet simple and minute plantule, the so-called embryo or germ. Simultaneously with the development of the pollen-cell into the embryo, the seed-bud is perfected into a seed, the germen into the fruit. A pause in the growth now suddenly occurs, and the seed may often be preserved for a long time in this apparently dead condition. But when favourable external circumstances come into play, the life begins anew with the further unfolding of the plant, which is commonly called germination."—p. 71.

Such is, in fact, Schleiden's theory of the development of the embryo in the ovule; and we were long ago struck, long, indeed, before we read anything which has been written upon the subject, with the analogy between pollen-grains and spores—between anther-cells and the thecæ of ferns: and it is but a step further in the same direction to conceive the same analogy to obtain also between the first act of germination of a spore upon the ground or in the water, and the development of an embryo from a pollen-grain in the embryo-sac of an ovule. This latter process, it is true, is not germination: but it is a



step preliminary to it, and strictly analogous to the emission of the tubular elongation from the lower portion of a spore when a suitable medium has been attained as a preliminary to the evolution of the first leaf-like expansions of the young cryptogam.

The lecture upon "The Morphology of Plants" treats upon the doctrine which traces all the variously formed organs of plants to modifications under certain circumstances of what, under certain other circumstances, would have been a leaf.

The fifth lecture is "About the Weather," and little else; and the following extract contains the cream of the matter, showing the connexion of vegetation with the varying conditions of the atmosphere.

"We have seen that heat and its varied distribution according to latitude and longitude, height and depth, is the peculiar fundamental phenomenon, around which the others group themselves, upon which they are dependent. Most intimately is the degree of moisture of the air connected with it, and warmth and moisture are the primary conditions of all vegetable life. On those two principal forces, therefore, hangs almost entirely the distribution of plants over the earth. The animal world follows the plants, since the vegetable feeders are directly, the Carnivora indirectly, connected with determinate formations of plants. So that heat and cold are not the only consequences of the position of the sun in regard to the earth, but also the whole life existent thereon: the action of its mightiest forces in the raging hurricane, which hurls four-and-twenty-pounders through the air, to the invisible labour of the most minute Infusorium; the roar of the Chilian pine, and the low whisper of the northern birch; from the roar of the lion, the slayer of the gazelle, even to the pipe of the mouse-hunting screech owl, whose discordant note the awakened sleeper's superstition interprets as '*komm mit, komm mit*.' (come with me). The fox and tiger point to the barn-door fowl and the giraffe, these to barley-fields and acacia-groves, these again to the corresponding zones of Europe and to the glowing savannahs of Africa. On the sun depend not only vitality and motion, but also the first arrangement, and its shining rays are the pencils with which it paints the light and shade, the glowing yellow of the arid sand, the cool green of the moist meadow, with which it lays down the geography of plants and animals upon the surface of the earth, and even sketches the design of an ethnographic chart of the human race."—p. 126.

The sixth and seventh lectures contain replies to the question, "What does man live upon?" To this question most people would give the negative reply, Man cannot live upon air; but then, says the

naturalist, Man can live very well upon air; nay, in point of fact, he does live on air alone, and nothing else whatever: and it is his business, aided by chemistry, to make good the assertion.

The Guacho of the Pampas consumes daily ten or twelve pounds of meat; the word *bread* does not exist in his vocabulary: the Irishman regales himself on "potatoes and point:" the hunter of the prairies roasts the hump of the buffalo he has brought down with his bullet: the Chinese enjoys his fattened rats and delicate puppies: the Greenlander in his snow-hut consumes with the greatest gusto his whale fat: the negro-slave sucks his sugar-cane and fattens upon the farinaceous banana: the oriental merchant, when setting out on a journey, fills his bag with sweet dates: and the Siamese crams himself with rice: "wheresoever over the whole inhabited earth we approach and demand hospitality, in almost every little spot a different kind of food is set before us, and the 'daily bread' offered in another form;" and these so varied kinds of nourishment contain a few similar matters, which peculiarly serve for the food of man, whence the unity of the end produced from the multiplicity of materials.

Four elementary substances, out of the fifty-three or thereabouts, which have been discovered in the numerous substances by which we are surrounded, alone take an essential share in the composition of all that is termed organic or living existence: these four are oxygen, hydrogen, carbon and nitrogen; and these form all the substances of which plants and animals are composed.

"The four elements under consideration form numerous compounds by their union one with another; but only two classes of these have a very deep importance in relation to the organic world. One of the classes comprehends the substances which are compounded of all four elements. This includes albumen, fibrine, caseine and gelatine. All animal bodies are formed out of these substances, which, when separated from them as dead matter, all pass rapidly by decomposition into water, ammonia and carbonic acid, which are diffused through the air. The second class, on the other hand, includes the substances devoid of nitrogen, namely, gum, sugar, starch, the liquors prepared from them, such as spirit, wine, beer, and, lastly, all the various kinds of fat. All these merely pass through the animal body, since the carbon and hydrogen are burnt off by means of the oxygen received in respiration, and are expired as carbonic acid and water. By this slow but uninterrupted process of combustion is maintained the heat indispensable to life. But by the recent brilliant discoveries in chemistry and physiology we have become aware that the animal body is

incapable of composing from their elements, or of forming from any other substance excepting caseine, the substances albumen, fibrine, &c., absolutely necessary to its development and support; that the animal must indeed receive substances ready prepared, in order to apply them to its nutrition, or to convert them into gelatine for the formation of its bony structures. Albumen, fibrine and caseine are therefore rightly named by Liebig the exclusive *materials for nutrition*; they cannot be replaced by any other substance; when they are entirely withheld the body must necessarily die of starvation. But the components devoid of nitrogen must also be present, as it were for fuel on the hearth of organic life; and these substances, which are in common life also called food, Liebig appropriately denominates *materials for respiration*."—p. 196.

After some further interesting illustrations of the different classes of vegetables which produce these materials in the greatest abundance, the author introduces some brief historical sketches of the introduction of coffee, chocolate and tea as beverages, for the purpose of calling attention to an unsolved physiological problem. "Everywhere have these beverages become necessities of life; everywhere is the origin of their use enveloped in mystical obscurity; everywhere has man, not led by rational considerations, by knowledge of their properties and action, or by comparison of them with already known nutritive substances, but, as it were, instinctively, added them to the number of his daily wants." Chemistry has endeavoured to discover the cause of this phenomenon; and the result has shown that in all these substances exists an element, distinguished from all other vegetable productions by the very large proportion of nitrogen contained in it; but experiments have hitherto failed to detect any special action upon the animal economy resulting from the administration of large quantities of pure theine, the substance alluded to.

Returning from this digression, the author goes on to show in what way the recent revelations of chemistry as to the constituents of substances used as food, account for the varying habits of those nations into whose ordinary diet enter a greater or less amount of either animal or vegetable products; and continues:—

"Our investigations have thus led us to recognize that the whole animal world lives upon the vegetable kingdom, either immediately by actual vegetable food, or mediately by the vegetable feeders collecting the peculiar nutritive matters for the Carnivora, from the plants, depositing the material for respiration, which contains no nitrogen, in the form of fat. But we do not arrive at the conclusion of our inqui-

ries here; for the question comes: 'What do plants live upon?' — p. 146.

The reply to this question involves the consideration of those important agricultural subjects, the properties and mode of action of manures. In the preliminary observations upon the chemical constituents of the vegetable fabric, oxygen, hydrogen and carbon, which form cellulose, the absence of nitrogen from these constituents is mentioned, and the necessity for a supply of that gas adverted to, in order that the plant may be enabled to perform certain chemical processes necessary for the elaboration of the nutrient matters taken up by the roots.

"The inquiry into the nutrition of the plant includes, therefore, the inquiry into the sources of carbon and nitrogen; oxygen and hydrogen being sufficiently provided by water and atmospheric air. The notion which has hitherto been generally received is, that the plant extracts its carbon and nitrogen from manure, or from the humus of the soil.

"All animal and vegetable bodies, so soon as they are dead, pass over into a state of decomposition, by means of which they are dissipated, sooner or later, in the atmosphere, being changed into carbonic acid, ammonia and water. So long as this process is incomplete, a residue, itself much altered, of a brownish or black colour, remains, which at the commencement of the decomposition is called manure, and towards its close humus, or vegetable mould. It is a complex mixture of very manifold products of decomposition. Now it was argued thus: carbon and nitrogen are abundant in humus; in a soil that is rich in humus or is well manured, plants thrive better than in one which is poor in humus; consequently, humus is the source of the carbon and nitrogen of plants. But this reasoning is altogether inconclusive."—p. 148.

It is manifestly inconclusive, because it does not account for the source of the immense quantities of nitrogen and carbon derived from the soil in cases wherein no, or comparatively very little, organic matter is returned to localities supplying organisms in which carbon and nitrogen abound. About 4,000 lbs. per acre of dry wood, containing about 1,600 lbs. of carbon, are annually derived from forests which receive no other manure or humus than what they obtain from their own leaves or broken wood: and by carefully conducted experiments instituted upon land nearly five acres in extent of area, for twenty-one years, it has been shown that the average annual harvest gained from the soil gave a result of twice as much nitrogen, three times as much

carbon and hydrogen, and four times as much oxygen, as had been given to it in manure during the year, even supposing that the whole amount of the nutrient qualities of the manure had entered the plants, which is never the case.

“And thus, as the final result of our inquiry, we arrive at the following grand view of the interchange of matter between the three kingdoms of Nature. Decomposition and the process of respiration set free all vegetable and animal substances (diminishing the amount of oxygen in the air) in the form of carbonic acid, ammonia and water, which diffuse themselves in the atmosphere. The plant takes possession of these substances, and forms from them, accompanied by an incessant increase of the oxygen of the atmosphere, compounds rich in carbon and hydrogen, but devoid of nitrogen, such as starch, gum, sugar, and the various fatty matters, and others rich in nitrogen, namely, albumen, fibrine and caseine. These compounds are for the service of the animal, which builds up its corporeal frame from the latter, and burns the former in the respiratory process, for the maintenance of the necessary heat. This theory stands now firm and unshakable upon the facts which have been brought forward, and the naturalist is perfectly correct when he says, that man, through the mediation of plants in the first instance, lives upon air. Or we may express it in this way: the plant collects the matters from the atmosphere, and compounds from them the food of man. But life itself is but a process of combustion, of which decomposition is only the final conclusion. Through this combustion all the constituents return back into the air, and only a small quantity of ashes remains to the earth from which they came. But from these slow invisible flames rises a new Phoenix, the immortal soul, into regions where our science has no longer any value.”—p. 152.

But then comes the question, “If the plant draws carbonic acid, ammonia and water from the air—if this is its only source of food—what is the use of manure?” One answer to this question is derived from physics, explaining the action of humus in general, the other from chemistry, showing the necessity for manure, and the advantages derived from its use.

Carbonic acid, ammonia and water being the food of plants, the question arises, how and by what organs do plants absorb these matters. Water to the amount of 99 per cent. at least is taken up by the roots; but plants have been proved to consume a far greater quantity of water than falls in the form of rain, even supposing them to absorb all the rain which falls, which is by no means the case.

"The watery vapour of the atmosphere must, therefore, be brought to the plant in some other way, and this happens through the property of absorbing the moisture of the atmosphere, which is possessed by most of the constituents of the soil. No substance possesses this property in so high a degree as the humus, originating out of the gradual decomposition of organic matters. The humus is also remarkably distinguished for its special power of extracting, and as it were collecting the carbonic acid and ammoniacal gas of the air; no solid substance of the soil equals it in this particular, and water itself only ranks second after it. Humus consequently contains, under all circumstances, water impregnated with carbonic acid and ammonia, and in proportion as this is withdrawn from it by the roots of the plants, the loss is replaced out of the atmosphere. This is certainly the principal road by which water is conveyed into the plant, most probably the most essential canal through which it is fed with ammonia, and there is no doubt that at least a great portion of the carbonic acid is thus brought to it."—p. 161.

The progress of vegetation, from the earliest appearance of plants in their simplest possible form, up to the most complicated structure, is well portrayed in the following extract, which also exhibits the mode in which humus or vegetable mould is gradually accumulated upon the previously bare surface of rocks, until a rich soil is formed, capable of supporting a luxuriant vegetation.

"Look at a recently exposed surface of a block of granite, for instance, on the summit of the Brocken; there we find that vegetation is soon developed, in the form of a little delicate plant, which requires the microscope for its recognition; and this is nourished by the small quantity of atmospheric water impregnated with carbonic acid and ammonia. This, the so-called violet-stone, a scarlet, pulverulent coating over the bare stone, which, on account of the peculiar smell of violets which it emits when rubbed, has become a curiosity, industriously sought by the thoughtful wanderer on the Brocken. By the gradual decay and decomposition of this little plant, a very thin layer of humus is by degrees produced, which now suffices to procure from the atmosphere food sufficient for a couple of great blackish brown lichens. These lichens, which densely clothe the heaps of earth round the shafts of the mines of Fahlun and Dannemora, in Sweden, and through their gloomy colour, which they impress on all around, make those pits and shafts look like the gloomy abysses of death, have been appropriately called by botanists the Stygian and Fahlun lichens. But they are no messengers of

death here; their decay prepares the soil for the elegant little alpine moss, the destruction of which is speedily followed by the appearance of greener and more luxuriant mosses, until sufficient soil has been formed for the whortle-berry, the juniper, and finally for the pine. Thus, from an insignificant beginning, an ever-increasing coating of humus grows up over the naked rock, and a vegetation, continually stronger and more luxuriant, takes up its position, not to be nourished on that humus, which increases instead of decreasing with every decaying generation, but by its means to be supplied with nourishment from the atmosphere."—p. 162.

But that this fertilizing humus is of itself incapable of furnishing the requisite pabulum to all plants indifferently, is evident from the scanty vegetation of localities where it abounds; and that it is not of itself the only requisite for a luxuriant vegetation is also evident from the number of plants which flourish where the soil contains but a small proportion of humus.

"When we look to the wild vegetation of our own latitudes, we find two principal classes of soil: one a peat or bog soil, which consists almost wholly of humus, therefore of decomposed organic matter, the other of calcareous, sandy, or argillaceous soils, in which the inorganic constituents prevail in so great a degree, that the humus, in the blackest soils, does not amount to more than 10  $\frac{1}{2}$  per cent. at most, and even in the most fertile, and those clothed with the richest vegetation, often scarcely forms  $\frac{1}{2}$  per cent. And that peat or bog soil, so rich in humus, can only afford sustenance to 300 of the 5,000 flowering plants growing in central Europe; and there are not perhaps fifty plants, therefore not one per cent., of which the actual conditions of healthy growth are furnished by the bog soil, which would not also thrive exceedingly well in other places, if the necessary moisture were afforded them. \* \* On the other hand, the other class nourishes the whole vegetation of our latitudes, in a multiplicity which is varied enough to our eyes, unused to the tropical world, and we generally find the richest abundance on the soils which are poorest in humus, but richest in inorganic constituents, on basaltic, granitic, porphyritic and calcareous soils."—p. 167.

As a general summary we may quote one more paragraph from this lecture, of which we fear our readers are by this time heartily tired.

"We have, then, three opposite conditions here: the common soil, bog soil, and that of gardens. The first nourishes an abundance of different plants, which, however, remain the same, in fixed consequence, through thousands of years. The bog soil is extraordinarily

poor in vegetables; it only brings forth the most formless and useless plants. Lastly, the garden soil not only nourishes in luxuriance every plant that is committed to it, but even continually multiplies the abundance of vegetable forms to infinity, to which, however, opposing climate sets a limit so soon as the favouring influence of culture is withdrawn. Then two other conditions present themselves, in contrast, to our consideration. We have on the one side the common soil, possessing little or no organic remains, and abundance of plants; on the other, the bog and garden soils, both rich to superabundance in the black constituent called humus, which has been formed by the decomposition of animal and vegetable organisms. And nevertheless, we find such a difference of influence on vegetation between the bog and garden land. But this is readily explained by the manner in which they have been formed. The peaty soil originates from the decomposition of organic substances in the presence of much water. The consequence of this is, that the water takes up and carries away all the soluble salts which were contained in those organisms, so soon as ever they are set free. In the garden soil, on the contrary, all those soluble salts remain behind, come immediately into the possession of the plants, and, under a rich culture of the soil, accumulated in them to an extraordinary degree, while the organic constituents, through uninterrupted decomposition, are continually diminished in quantity, and so can never accumulate in the way they do in the peat or bog soils, where the presence of water, after a certain time, restrains or very much retards the further progress of decomposition. A more striking proof of the correctness of the new views of the nutrition of plants could not easily be given, than these statements; views which were almost simultaneously established and made known by one of the most distinguished chemists, Liebig, and one of the most eminent and practical agriculturists, Boussingault."—p. 170.

In the eighth lecture — "On the Milk-sap of Plants," — the author enters into some interesting details relating to three great families of plants abounding in milk-sap. These families are the Euphorbiaceæ, the Apocynaceæ, and the Urticaceæ; the latter order, however, has been properly broken up, the milky plants formerly included in it being now grouped together in a new order, the Moraceæ, and to these most of the author's observations more strictly apply. The milk-sap of all the plants included in these orders contains more or less of caoutchouc, which occurs in the form of little globules. These are prevented from coalescing by an albuminous substance, in the same way as are the butter-globules in milk. Exactly like the cream



(butter) in milk, the caoutchouc-globules rise to the surface of the milk-sap of plants when left to stand, here form a cream and coalesce, and cannot, any more than butter, be separated again into their distinct globules." The principal part of the caoutchouc used in this country is obtained from *Siphonia elastica*, a member of the Euphorbiaceous group, but that of the best quality seems to be furnished by *Cynanchum ovalifolium*, an Apocynaceous species native to Pulo Penang. But while all three orders contain certain members whose sap is wholesome and even nutritious, as that of the cow-tree, they all abound in the most deadly poisons: witness among others the Wourari poison, the mode of preparing which by the Indians, and their use of it for poisoning their arrows, has been well described by Schomburgk, and quoted in a former number of the 'Phytologist' (i. 47). As a pendant to that account we may give the following graphic sketch of a Javanese forest:—

"Two very different trees grow in those little visited primeval forests of Java. All the paths leading to them are closed and watched, like those leading to the gates of the Holy of Holies. With fire and axe must the road be made through the impenetrably interwoven mass of Lianes, the Paullinias, with their clusters of great scarlet blossoms several feet long, the Cissi, or wild vines, on the wide-spread creeping roots of which thrives the giant flower of the *Rafflesia Arnoldi*. Palms, with spines and thorns, rush-like plants, with cutting leaves, wounding like knives, warn the intruder back by their attacks, and in every part of the thicket threaten the fearful nettles formerly mentioned. Great black ants, whose painful bite tortures the wanderer, countless swarms of tormenting insects pursue him. Are these obstacles overcome?—yet follow the dense bundles of bamboo stems, as thick as a man's arm, and often fifty feet high, the firm glassy bark of which repels even the axe. At last the way is opened, and the majestic aisles of the true primeval forest now display themselves. Gigantic trunks of the bread-fruit, of the iron-like teak (*Tectonia grandis*), of Leguminosæ, with their beautiful blossoms, of Barringtonias, figs and bays, form the columns which support the massive green vault. From branch to branch leap lively troops of apes, provoking the wanderer by throwing fruit upon him. From a moss-clad rock the melancholy orang-outang raises himself gravely on his staff, and wanders into deeper thickets. All is full of animal life; a strong contrast to the desert and silent character of many of the primeval forests of America. Here a twining, climbing shrub, with a trunk as thick as one's arm, coils round the columns of the dome, overpassing the

loftiest trees, often quite simple and unbranched for a length of a hundred feet from the root, but curved and winding in the most varied forms. The large, shining, green leaves alternate with the long and stout tendrils with which it takes firm hold, and greenish white heads of pleasant-smelling flowers hang pendant from it. This plant, belonging to the Apocynaceæ, is the *Tjettek* of the natives (*Strychnos Tieuté*, Lesch.), from the roots of which the dreadful *Upas Radia*, or sovereign poison, is concocted. A slight wound from a weapon poisoned with this,—a little arrow made of hard wood, and shot from the blow-tube, as by the South Americans,—makes the tiger tremble, stand motionless a minute, then fall as though seized with vertigo, and die in brief but violent convulsions. The shrub itself is harmless, and he whose skin may have been touched with its juice need fear no consequences. As we go forward, we meet with a beautiful slender stem, which overtops the neighbouring plants. Perfectly cylindrical, it rises sixty or eighty feet smooth and without a branch, and bears an elegant hemispherical crown, which proudly looks down on the more humble growths around, and the many climbers struggling up its stem. Woe to him who heedlessly should touch the milk-sap that flows abundantly from its easily wounded bark. Large blisters, painful ulcers, like those produced by our poisonous sumach, only more dangerous, are the inevitable consequences. This is the *Antiar* of the Javanese, the *Pohon Upas* (signifying poison-tree) of the Malays, the *Ipo* of Celebes and the Philippines (*Antiaris toxicaria*, Lesch.). From it comes the common Upas (*anglicè* poison), which is especially employed for poisoning arrows, a custom which appears to have extended formerly throughout all the Sunda islands, but which is now, since the introduction of fire-arms, only to be met with among the savages of the rugged and inaccessible mountains of the interior of the island.”—p. 203.

Turning from these envenomed denizens of the tropical forests, we find, in the ninth lecture, an interesting and agreeable “Sketch of the Cactus Tribe,” an order of plants possessing properties the very opposite to those we have just been considering, though in form many of its members closely resemble some of the singular leafless Euphorbias. None of the Cactaceæ are poisonous; the juices of all are more or less agreeable; while the beauty of their flowers, combined with the extreme oddity and eccentricity of their varied forms, renders them objects of admiration and curiosity with all lovers of plants. Our author has devoted much attention to this *bizarre* tribe; and his elaborate memoir upon their anatomy is referred to with approbation by Lindley, in the

'Vegetable Kingdom.' As Schleiden well observes, "Everything about these plants is wonderful;" even their internal structure differs widely from that of all other members of the exogenous class, and in the absence of leaves (which organs are replaced by hairs and spines), in the peculiar structure of their epidermis, and in the extraordinary quantity of oxalic acid secreted (forming insoluble crystals of oxalate of lime with the proportionate quantity of that earth taken up into the system), the Cactaceæ offer some of the most curious phenomena to be found in the whole vegetable race.

"With the exception of the genus *Pereskia*, no plant of the order possesses leaves. Those parts of the *Cactus alatus*, and the Indian fig, which are commonly called leaves, are nothing but flattened expansions of the stem. On the other hand, they are all distinguished by an extraordinary fleshy stem, which, clothed by a grayish-green, leathery cuticle, and beset, in the places where leaves are situated in regular plants, with various tufts of hairs, spines, and points, gives, by its very varied degrees of development, the varied character of the plants. The torch-thistles rise in form of nine-angled or often round columns, to a height of thirty or forty feet, mostly branchless, but sometimes ramifying in the strangest ways, and looking like candelabra; the Indian figs are more humble; their oval, flat branches, arranged upon one another on all sides, produce special forms. The lowest and thickest torch-thistles connect themselves with hedgehog and melon Cactuses, with their projecting ribs, and thus lead us to the almost perfectly globular *Mammillarias*, which are covered very regularly with fleshy warts of various heights. Finally, there are forms in which the growth in the longitudinal direction prevails, which, with long, thin, often whip-like stems, like that of the serpent *Cactus*, so often cultivated here, hang down from the trees upon which they live as parasites."—p. 215.

*Linnaeus* seems to have known only about a dozen species of this family, which were all grouped together in his genus *Cactus*: *Schleiden* states the number now known at more than four hundred, distributed into ten genera; and *Lindley*, in his 'Vegetable Kingdom,' gives the number of species at eight hundred (with two marks of doubt), and sixteen genera. America is the exclusive station of the order, no other part of the globe appearing to possess a legitimate claim to a single indigenous species, though many have rapidly become naturalized in Europe and other parts of the Old World, since their introduction from America. The driest situations, where they are exposed to the burning rays of the tropical sun, are their

favorite localities, and there, amidst surrounding aridity, they elaborate that pleasantly flavored acid juice so refreshing to the traveller, and which even the wild ass knows instinctively how to avail himself of, by stripping off the spines of the *Melocactus* with his hoof, and then sucking the cooling lymph from the fleshy tissue. The peculiar habit of the plants belonging to this order has given rise to some plausible but unfounded opinions connected with them, which are well exposed in the next extract.

"The *Cactaceæ* have long been compelled, in science, to serve as the prop of a statement which, altogether false, has yet been frequently put forward by distinguished botanists ; I mean, the assumption that many, or even all plants are capable of imbibing their nutriment from the air. Even in the present day has this idea been again revived, with all the long-ago-refuted reasons, by Liebig, whose '*Organic Chemistry*' has made so imposing an appearance. It is believed, that from the vast amount of watery juice in the *Cactus* tribe, joined to the fact that most of them, and exactly those richest in sap, vegetate on dry sand, almost wholly devoid of vegetable mould, where they are besides exposed, often three-fourths of the year, to the parching sunbeams of an eternally serene sky ; from this combination of circumstances, even, it is thought that we may the more safely conclude, that these plants draw their nourishment from the air, since in our own hot-houses also it has been observed, that the branches of *Cactus* stems, cut off and left forgotten in a corner without further care, far from dying, have frequently grown on and made shoots three feet long or more. De Candolle first found the right path, when he weighed such *Cactus* shoots which had grown without soil, and found that the plant, though larger, was always lighter ; therefore, instead of abstracting anything from the atmosphere, must rather have given up something to it. All the growth takes place, in such cases, at the expense of the nutritive matter previously accumulated in the juicy tissue, and it generally exhausts the plant to such a degree, that it is no longer worth preserving. It is that succulent tissue which enables the *Cactus* plants,—one might compare them with the camels,—to provide themselves before-hand with fluid, and thus to brave the rainless season. Their anatomical structure also assists them in this respect, in a peculiar manner. We know, from the experiments of Hales, that plants chiefly evaporate the water they contain through their leaves, and the *Cactus* tribe have none. Their stem, too, unlike that of all other plants, is clothed with a peculiar leathery membrane, which wholly prevents evaporation. This membrane is composed of

very strange, almost cartilaginous cells, the walls of which are often traversed by elegant little canals. Its thickness varies in different species, and it is thickest, and therefore most impenetrable, in *Melocacti*, which grow in the driest and hottest regions, while it is least remarkable in the species of *Rhipsalis*, which are parasites on the trees of the damp Brazilian forests."—p. 221.

As a matter of course, the Cactaceæ could not be treated on without some allusion to their various economical uses. Almost all bear an edible fruit, which, as Schleiden well observes, may be looked upon as "a nobler form of our native gooseberry and currant, to which also they are the nearest allies in a botanical point of view." The old dead woody stems of the torch-thistles (*Cereus*) are, as their name implies, used as torches; and they are carried up the Cordilleras on mules to serve as beams, posts, and door-sills to the houses. The *Opuntias* are used in Mexico and other parts both of America and Europe to form hedges: the spines of *Opuntia Tuna* are said to be so large and strong as to kill the buffaloes by the inflammation following wounds inflicted by them; and it was this species, planted in a triple row, which formed the boundary line between the English and French in the Island of St. Christopher. But it is in a mercantile view as the supporters of the cochineal insect (*Coccus Cacti*), that these plants have perhaps attained the highest importance. Humboldt has stated that the importation of cochineal from Oaxaca alone is valued at £500,000; the pound costing about 30s., and containing some 70,000 insects, which will give an idea of the enormous number of insects, and the great extent of this peculiar kind of culture.

The deformed and shapeless forms of the stems of these plants is abundantly compensated by the splendour of their flowers, none of which yield the palm to the splendid blossom of the night-flowering *Cereus* (*Cereus grandiflorus*), about eight inches in diameter, which, with their vanilla-like scent, unfold in the evening, are fully expanded about midnight, and by morning faded never to revive again.

In the lecture on "The Geography of Plants," the laws which regulate the distribution of the vegetable kingdom are discussed in the same popular style as the other branches of the science. In connexion with this subject lie, side by side, a soluble and an insoluble problem; the one soluble, because it can be stated definitely as "the Dependence of the Distribution of Plants on the Physical Conditions of the Earth;" the other insoluble, "because no definite proposition can be laid down which the inquirer may apply himself to elucidate." To the first belong such facts as are explicable upon a consideration

of the influences of climate and temperature; to the the latter, the more curious class which relates to the substitution, in one part of the globe, of certain representatives of species not found there, but which abound in other localities, possessing perhaps the same climatal conditions as those from which the represented species are excluded. Take, as a case in point, the Ericaceæ and their allies.

"From the southern point of Africa to the North Cape in Mageroe, the heaths extend throughout the Old World, merely leaping over the proper tropical regions. With the same latitudes, the same climate, and similar conditions of soil, we find not a single species of true heath in all America. Other allied plants replace them, plants which at least belong to the same family (the Ericaceæ); but if we go to Australia, we find under corresponding conditions, not one Ericaceous plant, but in their place appears an allied, but wholly peculiar family of plants, the Epacris tribe."—p. 240.

Then again the leafless fleshy Euphorbias of the Old World are represented, in form at least, by the Cactaceæ of the New; and yet the Cactaceæ, though originally strictly limited to the former, are no sooner introduced to many parts of the latter, than they become perfectly naturalized, a proof that mere climate and soil have nothing to do with their original location. What, then, is the influential agent? In the inquiry

"Two essentially different points have to be distinguished. The heath plants *occur* on dry, sunny, sandy plains; they *extend* from the Cape of Good Hope, through Africa, Europe, and Northern Asia, to the extreme limits of vegetation in Scandinavia and Siberia; these plants are *distributed* in this great region in such a manner that South Africa has innumerable distinct species, of which, however, never more than a few individuals grow side by side, that then, towards the north, the number of species suddenly diminishes in an important degree while the number of individuals increases, till at last, in the north of Europe, a single species, the common heather (*Calluna vulgaris*), overspreads whole countries in millions of single individuals. In the first place, we readily see that only the first determination, that of the *occurrence*, relates necessarily to each individual; while, on the contrary, the *range of extension*, and the *mode of distribution*, indicate causes which have scarcely any importance in reference to the single individual, but very great in relation to the larger groups of plants, which we call species, genus, tribe, &c. From this it follows, that the former only, the occurrence of plants, is related wholly, while the other two are related but partly, to conditions explicable by physical

influencee ; yet we must, at first, keep more to that arrangement, since it is strictly logical, which will remain fixed for incalculably long time, while, of course, the last arrangement only holds good for the existing condition of science. When, namely, we review the various influences upon which the life and healthy vegetation of a plant are, according to our present physiological knowledge, dependant, we quickly find that only a small number of physical forces are as yet detected by us, in their action upon the organism, that on the other hand, a proportionately large number at present altogether baffle our endeavours after a more accurate comprehension of their action, although we may safely assert that the life of the plant is, and must be, as much dependant on them as upon the others. Merely by way of example, I will mention light, electricity, and the pressure of the atmosphere. The two first, as continually in action in every chemical process ; the last, of essential importance in all the processes and relations between gases and vapours ; must likewise powerfully affect the life of the plant, which consists in progressive chemical combinations and separations, in continual absorption and excretion of vapours and gases. The *how* is as yet a complete mystery to us, and many of the at present wholly incomprehensible conditions in extension and distribution, may sooner or later find sufficient explanation in these influences."—p. 242.

In his remarks upon "the Dependence of the Distribution of Plants on Physical Conditions," from which the above extract is taken, the author gives a graphic sketch of the various appearances successively presented to the eye of the botanical geographer as he scans the vegetation of the globe, from the "snow-covered ice-plains of the extreme North, where the red-snow Alga alone reminds us of the existence of vegetable organization," in a southward direction, down to the garden of Orotava, in Teneriffe, where the gigantic arborescent lily-like *Dracæna* "recounts to the musing listener the traditions of thousands of years." The six zones of vegetation thus passed through have presented us, in conjunction with the continually increasing temperature, a continually differing and ever a more luxuriant vegetation. Ascending the Pic of Teyde, and counting by the limits of vegetation, we may then re-survey in a few hours' climb, the wide journey from Spitzbergen to the Canaries, an extent of upwards of fifty degrees of latitude. In our ascent of the Pic we find that

"Man has taken possession of the soil of the plain at its foot, and dislodged the original vegetation. Through vineyards and maize-fields we ascend, till the shades of the evergreen bay-laurel surround

us. Trees of the lace-bark tribe and similar plants succeed; we wander for a time through *a zone of evergreen forest trees*. At a height of 4,000 feet we lose the plants which had so far accompanied us. A very small number of peculiar plants mark a quickly traversed *zone of deciduous trees*, and we come among the resinous trunks of the Canary pine. A *zone of Conifers* shields us from the sun's rays up to a height of 6,000 feet, then the vegetation suddenly becomes low,—from humble bushes it passes into a Flora which bears all the characters of the Alpine plants, till finally the naked rock sets a limit to all organic life, and no snow and ice bedeck the summit of the mountains, only because its height of 12,236 feet does not, in a position so near the tropics, extend up to the region of eternal snow.”—p. 246.

Facts of this description inevitably lead to the conclusion that the intensity of light, the pressure of the atmosphere, the constitution of the soil, and conditions of temperature and moisture, all exercise considerable influence upon vegetation. But this will not account for the other class of facts adverted to; it will not explain why the common daisy (*Bellis perennis*) should occur in Europe (almost universally), in Australia (where it has probably been introduced), in Northern Asia, in some parts of Africa, and in South America, without deigning to favour North America with its presence, except as a choice exotic, tended with the most jealous care in botanic gardens. In the words of our author, it does indeed seem to us

“Wholly the result of caprice, that particular plants are distributed widely over the globe, while others must live cribbed in the narrowest spot, as, for instance, the *Wulfenia*, occurring exclusively on the Carinthian Alps; that particular families, like the *Compositæ*, flourish abroad over the whole earth, while others, like the peppers and the palms, only occur between very definite degrees of latitude on either side of the equator, the *Proteaceæ* only in the southern hemisphere, the *Cactus* tribe only in the western half of the earth. Just as inexplicable is the *mode of distribution* of the families of plants. While the palms diminish in number from the equator into high latitudes, the *Compositæ* attain their highest development in the zones of mean temperature, their number of species diminishes from these in both directions, equally towards the equator and towards the poles; while, finally, the grasses increase constantly from the equator towards the poles.”—p. 257.

Such considerations teach us the absolute necessity for the further accumulation of *facts*; and the necessity is not limited to this parti-



cular branch of Natural Science, but is equally extended to all, even to those which now seem to stand upon the surest foundation. The grand difficulty, as Schleiden well says, is to state the question correctly—to know positively what we require, and to state our wants in positive terms. The history of every science is this:—

“Series of facts accumulate, evidently allied in their nature; if the quantity become considerable, they are collected, in systematic arrangement, into a so-called science, but the seeker wanders hither and thither without hold or aim; material is heaped up, and yet science does not advance one step. Then comes a man, eminently gifted with genius, or frequently even merely one happily favored by accident, and gives definite expression to the problem, for the solution of which men had been tormenting themselves without knowing it; and now all the mental powers of the inquirers are suddenly directed to this one point. Down fall the barriers in rapid succession, and science advances with giant strides, till she comes again to a point where all progress is obstructed, where everywhere is met a flat and impenetrable wall, and now the same process of development must be repeated anew, in a higher stage, till again a new leader strike on the right place, where the wall rings hollow, and thus betrays the possibility of a further advance.”—p. 237.

In the eleventh lecture we have a sketch of “The History of the Vegetable World,” from the first faint indications of vegetation through its successive stages up to the present fair clothing of our earth. Much of this is, of course, conjectural, though the few great landmarks presented to us in the grand stone herbarium of other days warrant us in believing that in this case conjecture is not far wide of truth. A history of the early vegetation of the earth, must of necessity involve to a certain degree the history of the early ages of the earth itself, its successive changes of climate and its various rock formations; the following sketch contains an abridged view of the argument.

“The gradual development of the vegetable world commenced with the simplest plants, and advanced gradually through the succeeding periods to the most perfect plants of our existing vegetation. The structures of the first period correspond to a tropical climate contemporaneously extended all over the globe, which passed by degrees from the poles towards the equator into the present climatal conditions; and keeping pace with this appeared another change, for the plants of the oldest period, which seem to have been equally distributed over the whole earth, by degrees were confined into regions of distribution, and so passed into the great geographical variety of the

vegetable world. The gradual conversion of the universal tropical climate into the present climatal zones, may be shown in another very interesting manner, in quite a special instance. All ligneous trunks of Coniferous trees continually increase in thickness at all parts of their circumference. In the equatorial regions, where the climate retains the same character uninterruptedly throughout the year, this thickening of the trunk proceeds without interruption, and homogeneously; no mark betrays, in a smooth transverse section of the stem, the time which was required for its formation. As we proceed towards the north, however, as the climatal conditions produce continually increasing diversity in the particular seasons, the corresponding growth in thickness shows itself to have been furthered by the favourable season, and restrained or altogether interrupted by the unpropitious times. In a cross section of a stem are seen, the higher the latitude in which it has grown, the greater differences in the structure of the successive portions of the wood; until, finally, in the latitudes where there is a severe alternation of winter and summer, so striking becomes the difference between the wood last formed in summer and that first produced in the next spring, that we may count in the number of annular marks thus produced, in a cross section, with great certainty and accuracy, the number of years which have been occupied in the formation of the trunk. The circular lines upon the cross section, well known to every forester, are thence called the *annual rings*. When, fortified with the knowledge of this fact, we compare with each other the trunks of the Conifers which we obtain from the various epochs of formation, we find that the oldest remains exhibit no trace whatever of annual rings; but in the course of time they become continually more defined, so that lastly, in the most recent formations, for instance in the upper brown coal, they appear marked just as distinctly as in the trees now living in the same localities."—p. 286.

The assumption of repeated creations advocated by some modern naturalists finds no favour with our author, who holds the idea "of a totally new origination of vegetable germs, out of unorganized or even inorganic matters, to be superfluous, and therefore not to be admitted;" he is content to trace back the multifarious forms of vegetation which now adorn the earth to the acknowledged first and simplest form—the cell, which we know can and does vegetate as an independent plant. And, as shown in the preceding sketch,

"We see that the vegetable world begins in water, under the simplest forms, and in that very family in which the whole plant is represented by a single cell, most frequently, in the present time. In the succeed-

ing periods the other groups are added to this, making their appearance in a series which corresponds through a continually higher organization, *i. e.*, continually more manifold vital processes, to the successively more manifold and complicated physical conditions which come into action. Thus the stemless Cryptogamia are followed by those provided with stems and leaves. Then the Gymnosperms (Conifers and Cycadeæ) enter upon the field; to these succeed the Monocotyledons, and lastly appear the Dicotyledons. Imperfect as are the documents we have obtained, and little as we have yet decyphered of them, yet in no period do we find the appearance of a wholly new creation, but the organic beings are always added gradually; the lowest members of one period succeeding to the highest members of the foregoing, in such a manner that they at least repeat its principal type; nay, we may even say more than this: if both genera and species, or even families of plants, have disappeared from the earth, there does not exist, even in the oldest remains, any peculiar great group, a form of plants constituting as it were a stage of development of the vegetable world, which has not its representative also exhibited in the Flora of the present world.

"This view, that the whole fulness of the vegetable world has been gradually developed out of a single cell and its descendants, by gradual formation of varieties, which became stereotyped into species, and then, in like manner, became the producers of new forms, is at least quite as possible as any other, and is perhaps more probable and correspondent than any other, since it carries back the absolutely inexplicable, namely, the production of an organic being, into the very narrowest limits which can be imagined."—p. 292.

This, it will be said, is Vestigianism; but it differs from that doctrine, inasmuch as it supposes the gradual addition of new organs to those previously present, not the transmutation of such organs into others. As the author observes—"That the germ of inorganic life came forth upon the earth once, at least, out of the strife of the inorganic elements, admits of no doubt;" still, there is another question—"has this process occurred more than once? And *must* it have occurred more frequently?" He further asks—"Since in these matters every one has, and may have, his own proper fantasies, why should not I too have mine?"

The lectures conclude with one upon "The Æsthetics of the Vegetable World." And here we can neither pretend to follow the author in his metaphysical flights, nor to be able to give our readers any intelligible account of them: choosing rather to quote the lines of Faust used as a motto to this lecture, as meeting our own case:—

"The import of the shapes, I wished  
 In magisterial wise t'unfold;  
*But what I could not comprehend  
 Might not of course by me be told."*

The grand object seems to be the "tracing the symbolization of the vegetable world, through every form of Divine worship that has existed among the various races of mankind." But, fearing that by this time our readers must be aweary of a subject already extended beyond all reasonable length, we must plead as an excuse for prolixity the generally interesting nature of a book, some idea of which we have endeavoured to lay before them by means of the extracts we have culled from its pages; not with a view of superseding a reference to the work itself, but rather in the hope that some at least may be tempted from our samples to make themselves acquainted with the original; where, although certain things may be encountered calculated to startle those who are unacquainted with the German mode of treating scientific matters, yet we must say that we consider the English botanist to be under an obligation both to author and translator for the production of a book well calculated to vindicate the claims of Botany to a far loftier position as a science than many, even at the present day, are from ignorance of its merits inclined to accord it.

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*Observations on certain Plants occurring near Dumfries.*

By PETER GRAY, Esq.

ABOUT the middle of last month I gathered *Pyrola media* and *Lycopodium alpinum* in some quantity for distribution. The only habitat at present known in this district for these rather rare plants is upon the eastern slope of those hills which hem in the vale of Dumfries on its western side, above and some hundred yards to the north of the mansion-house of Dalskairth, in the Stewartry of Kirkcudbright. While thus engaged I noticed so many plants not generally met with, and these in such profusion, that I am tempted to give you a brief account of my ramble. The district in question, not to speak of the range of hills of which it forms a very small part, has never been examined with much attention, although I am convinced it would well repay it. On the day upon which, in company with a friend, I last visited it, the beams of an almost vertical sun flashed on our heads,

“ Not, though in northern clime, obscurely bright,  
But one unclouded blaze of living light.”

Our walk from Dumfries was a perfect martyrdom, the road nearly to the foot of the hills being entirely unsheltered, and the ground rising the whole way, while not a breath of wind stirred the glowing air. Just before entering the pass for the side of which we were bound, and about that part of the road where the Cumberland mountains first break on the view away over Mabie Moss and the Solway Firth, -in the corner of a field on the right, is the first station I knew for *Sanguisorba officinalis*, which is not, however, anywise uncommon in our neighbourhood. A little further, nearly opposite the road through the moss, I picked in the hedge, from one of a number of plants of *Linaria vulgaris*, an imperfect specimen of the *Peloria* variety. The lower lip of the flower was quite flat, long, and curiously awry; the spurs were two in number. I have found many incomplete, never a perfect example of this variety, growing on the bank now noticed. About a quarter of a mile onward we struck off the road to the left, and commenced the ascent of the hill by a foot-road, steeper in many parts than the roof of an ordinary house. Here, among immense quantities of the wood strawberry, the bilberry, *Polypodium Dryopteris*, and other neighbours more characteristic of the oak copse lately cut down than the present comparatively bare condition of the hill side, and near its summit, we found a few stray specimens of *Rubus saxatilis* in fruit; but my companion, more of an epicure than a botanist, who preceded me, had plucked and eaten the ripe drupes before I knew or could prevent him. We had now arrived at a limited upland, partially cultivated, and affording sites for two farm-houses, the northernmost named, I believe, Hillhead. Passing this quickly, we pushed up the hill, but were soon forced to throw ourselves, panting, under the welcome shade of a stunted, though, fortunately for us, an umbrageous tree. Indeed, I never recollect being exposed, on a similar occasion, to such intense heat. By-and-bye, however,

————— “ There crept  
A little-noiseless noise among the leaves,  
Born of the very sigh that silence heaves,”

which later in the afternoon increased to a refreshing gale; and a haze having also partially veiled the sun, the remainder of our ramble was accomplished with something like comfort. Yet, apart from

every other consideration, the view from the point in which we were derved amply compensated all the toil of the ascent. A great portion of a populous and fertile valley, bathed in all the radiance of a glorious summer's day, lay at our feet, studded with houses, variegated with fences innumerable, patches of wood, and crops of every kind and hue, the whole surface beautifully undulating, upon which the eye never tired of resting, with

“ Town and village, dome and farm,  
Each lending each a double charm.”

Northward, and to the east, sate Queensberry among his myrmidons—

“ Mountains on whose barren breast,  
The labouring clouds do often rest ;”

on our extreme right the still more majestic Criffel ; and, beyond, the sparkling waters of the Solway, from which up the estuary and along the tortuous channel of the Nith the tide was stealing like a crested basilisk ; while far out upon its bosom, like sea-birds, floated numbers of coasting vessels, clumsy and uncomely enough when close at hand, but graceful and gay in the distance. And opposite us, upon its table-land, lay Lochrutton loch, like a mirror, placid and lonely, with the white walled hamlet of Merkland glistening in the sun. Moving northwards along the full round brow of the greywacke hill upon which we stood, we soon came upon a profusion of *Lycopodium alpinum* in fruit, and very abundantly furnished with spikes. By the way, I may remark that the spores of this plant are even more inflammable than those of *L. clavatum*. Here also I picked up a *Carex* not unlike *C. stricta* in several of its characters, and observed plenty of *Empetrum nigrum* (in fruit, of course), along with many of the plants usually found in its company. Returning towards Hillhead, we found *Gentiana campestris* sparingly ; and among the heath in abundance *Habenaria bifolia* and *Pyrola media*, both beautiful objects, interspersed with the yellow flowers and bright green foliage of *Genista tinctoria*, with *Linum catharticum*, &c. Near this place I gathered some years ago a single specimen of *Pyrola rotundifolia* : I have never met with another. The most striking object, however, was *Lycopodium clavatum*, on this part of the hill forming patches about two feet wide and many yards in length, winding in a curious manner among the red heather, and in full fruit. Farther to the southward *Gymnadenia conopsea*, growing beside its less favoured congener *G. albida*, cast a delicate fragrance

everywhere, mingled, in the invigorating air of these uplands, with the sweetness of many a mountain flower. On some well defined tracts of a lighter green, which are probably watercourses in winter, *H. viridis* occurs, though more sparingly, with *Botrychium lunaria* on several dry knolls farther to the south; and about the margin of a rivulet in the same direction, *Lycopodium selaginoides*. Near this spot, on one occasion, I gathered *L. Selago*, thus making four out of the six British species of this genus, within a very short distance of each other, on one hill-side. On the banks of this stream, still lower down the hill, a friend used to gather *Jungermannia tomentella* with calyces, although never lucky enough to find it in fruit; and another orchid, not very frequent with us, *Neottia Nidus-avis*, grows in the same neighbourhood, along with *Bartramia arcuata*, *Hypnum brevirostre*, *Hookeria lucens*, and *Neckera crispa*, all plentifully in fruit in their season, with other *Cryptogamia*, the names of which it is unnecessary to recapitulate.

The extension of the empire of cultivation is all very good; but one of its results is occasionally not a little annoying. The plough is rapidly assuming a supremacy over one of the best, if not the very best, botanizing grounds about Dumfries—the borders of the pond that supplies water-power to Stakeford Foundry, known to curlers, skaters, and truant school boys as Maxwelltown Loch. A year or two bygone, urged by the apparition, a few months previously, of several cartloads of tiles about the spot, I visited it for the purpose of securing what I feared would be a last bundle of *Eriophorum pubescens*. Instead of the object of my search, however, I found a very flourishing crop of *Solanum tuberosum* in lazy beds; and the disappointment was the occasion of a not very patriotic couplet I find in the margin of my Hooker. Drainage has also destroyed our locality for the variety of *Carex limosa* honoured by some botanists with the specific title of *irrigua*; and I am very much afraid that *Carex limosa* herself will be obliterated this year or next by the same process, surrounded, as she is, in her only habitat in this quarter by land gaping for potatoes.

Is *Carex muricata*, *Linn.*, a good species? I gathered on the 10th of July a few specimens of a plant which I have thus entered in my note-book:—" *Carex muricata*. The spikelets of this plant are sterile at their upper extremity, and generally six, always more than four in number; the stems are from one and a half to two feet in length, as long as, perhaps rather longer, than the leaves; and the fruit is smooth on the greater part of its bordered margin, but rough at the beak.

On the other hand it approaches *C. stellulata*, in the next division, if not in the relative length of stems and leaves, and in the smaller size of the fruit, at least in the latter being green and not yellow-brown in colour. The spikelets are also too distant from each other, and the bracts too large for my idea of *C. muricata*. The *Carex* I gathered in 1847, in the wood beside Lincluden, seems intermediate between this and *C. stellulata*, as this is between it and the one from the roadside opposite Lincluden Lodge, which agrees in every point with the description in Hooker, the only constant and perfectly appreciable character common to the three being the smooth margined capsule."

PETER GRAY.

Queen Street, Dumfries,  
August, 1848.

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*Notes of a Botanical Excursion in Hampshire.*

By JOSEPH WOODS, Esq., F.L.S., &c.

I STARTED on the 8th of June for a little excursion into Hampshire and Dorsetshire. At Southampton I observed, as I do at Lewes, two forms of *Bromus mollis*. One with short branches to the panicle, many of them bearing two or three spicules, the whole much contracted after flowering; the other with the branches of the panicle much longer, and hardly or not all divided, and the panicle but slightly contracted after flowering. I cannot say that we do not sometimes observe intermediate forms, but I cannot clearly see in what the second differs from *B. racemosus*, except in the pubescence. The longer simple peduncles are generally longer than the spicule, as they are in *B. commutatus*, and not unfrequently in *B. racemosus*.

On the 9th I again got upon the railway, retracing my steps as far as Bishopstoke, and thence proceeding to Rumsey, where my principal object was to see the magnificent Norman church, which I had never visited. I walked here along the Salisbury road, and then through the woods of Emly to what was once Rumsey Common, now a grove of fir-trees, returning by the Heathcote monument (which I did not see), near which I found *Pyrola minor*, the only prize in this day's walk.

The 10th was wet, and I spent part of the morning in sketching the church, and then took a fly to Lyndhurst. The landlord at the White Horse, at Rumsey, charged me 5s. for the sitting-room. It seems to me that many of our innkeepers have lately endeavoured by



an increase of charges to make up the deficiency occasioned by the rail-roads. I have no objection to paying a moderate sum for the sitting-room. I prefer having and paying for the accommodations I really wish, to being expected to call and pay for things which I do not want, but then it seems but fair that the charges which were added to what we eat and drink, as a compensation for the use of the room, should be reduced. As far as my experience goes, however, where we have to pay for the sitting-room we have to pay higher for everything else. Thus, to compare my expenses at the White Horse here with those at the Ship, at Swanage, where the mode of life was the same, and the accommodations as nearly equal as possible, I find that at the latter they amounted to 7s. 3d.  $\frac{1}{2}$  day, and at Rumsey to 15s., almost every article being charged higher at the latter place, besides the charge for the sitting-room.

After attending church at Lyndhurst I took a walk on the forest. There is a fine, high, heathy table-land, not devoid of trees, affording a magnificent view, which embraces both ranges of chalk hills, the Isle of Wight and the blue hills of Dorsetshire. The ascent is steep and bold, but this higher land is very little seen from other parts of the Forest, which I confess I rather complain of as tame and monotonous. There is, however, some very pleasant and well varied country immediately about Lyndhurst. Of plants I saw nothing rare for this part of the world. *Carex pulicaris*, *Osmunda regalis* and *Pinguicula lusitanica* occur in the bogs. *Agrostis setacea* is the grass of the dryer sandy and gravelly heaths, and *Festuca tenuifolia* is also not unfrequent. Babington says of *F. ovina* (in which he includes *duriuscula*) "Root not truly creeping," which seems to indicate that he perceived traces which approached to a creeping root. Smith says of *ovina*, "Root of long fibres;" of *duriuscula*, "Root scarcely creeping." Koch attributes a fibrous root to *ovina* and *heterophylla*, which, as he often puts fibrous in opposition to creeping, seems to imply that in these plants he considers it as not creeping. Cosson and Germain, who distinguish *duriuscula* both from *ovina* and *heterophylla*, say nothing of the root. Bertoloni says that the root of *duriuscula* (including *F. ovina*) sometimes emits short runners. I find in the usual form of *ovina* and *duriuscula*, as well as in the foreign *heterophylla*, which is perhaps only a variety of *duriuscula*, a slender, creeping rhizoma, which seems to be generally wanting in *tenuifolia*. It is brittle, and I believe never comes up with the plant when the latter is pulled up.

The 12th was again wet, and my walk along the Christchurch

road very unsatisfactory. I was quite too early for the *Neottia*, and a range of bog which looked very promising yielded nothing.

13th. Again heavy showers in the morning, which prevented me from visiting Costicles Park. I took the rail-road to Brockenhurst, whence an omnibus conveyed me to Lymington. Of Mr. Smith's *Scirpus parvulus* I am afraid there is very little hope, at any rate I was much too early for it. *Sclerochloa Borreri* is abundant, and there is also some *S. procumbens*. The *Borreri* was only just beginning to flower. The salt-works from forty are now diminished to eleven. On the 14th I crossed at the ferry and walked up to Sir H. Burrard's monument, a beautiful spot. I then continued along the shore, where *Cenanthe pimpinelloides* is abundant, and from here to Wareham and Lulworth it is a common plant, not at all particular as to soil or situation, but rather, I think, flourishing best in a sandy loam. Mr. Watson thinks the roots not sufficient to characterize the plant, but I have never seen any when in flower or fruit where the root was not decisive. The children eat the tubercles under the name of earth-nuts. *Carex divisa* is abundant and very luxuriant, and we meet with a little *Artemisia Absinthium* on a gravelly soil. *Senebiera didyma* and *Linum angustifolium* occur along the shore.

I walked from Lymington to the station at Brockenhurst without adding anything to the plants I had already observed. There is a range of hills of a dry, white gravel, with boggy ground at the bottom, which seemed very promising, but afforded nothing but the common plants of the country. The railway took me to Poole. In the evening a heavy storm came on, but the next day I walked to Bourne Mouth, taking in my way the station of the *Simethis bicolor*, *Kunth*, *Anthericum planifolium*, *Linn*. The idea suggested by its position is that it originally occupied a space of perhaps twenty yards in diameter, which was cut through by a road when the fir-plantations were made, *i. e.*, as I understand, about forty years ago. It grows on open, barren heaths in the west of France, and I should think is not at all connected with the fir-trees. There seems to be only this one patch, at least I saw it in no other spot, though I calculated that my various traverses of heaths and fir-plantations (there is nothing else about Bourne Mouth) on this and the following days, could not be less than thirty miles, yet it would be a singular chance that this road should happen to divide the only patch of it in the country; and my observations go but a little way compared to the great extent there is of this sort of soil in the Poole basin.

When is a tree to be deemed naturalized? Trees and shrubs, at

least such as form hedges or yield timber are so much the subjects of planting that it is difficult to decide what are truly native. There is a hedge of *Lycium barbarum* on the shore near Lymington, far from any house, and I know not how the student would be able to pronounce that it was not wild. At Malesherbes and Etampes, in France, the woods abound with *Cytisus Laburnum*, looking quite as if the natural produce of the country; but it has been planted for fuel. In the same neighbourhood we meet with *Syringa vulgaris*, and this is also planted in Germany as a shelter for the game. We have, I believe, no originally indigenous *Pinus* in England, but the seeds of *P. sylvestris* sometimes come up abundantly and form a natural wood where a sandy soil has a somewhat peaty covering, as, for instance, on Esher Common. In the Poole basin the *Pinus pinaster* propagates itself, and at Alum Chine, and perhaps elsewhere, we may make out a strong probability of two native generations. I confess in such a case I think the tree ought to find a place in the English Flora.

My next walk was along the shore as far as Poole harbour. The sea is gaining all along the shore, which keeps it nearly clear of maritime plants. Towards the harbour the sand-hills yielded me *Triticum junceum*, and *Festuca rubra* of the form which has been called *sabulicola* by some continental botanists. We have a series in this tribe in the structure of the root: first, *tenuifolia*, which seems to have the least of a creeping rhizoma; then *ovina* and *duriuscula*, where it is very slender; next *rubra*, of our hills and meadows, where it is stouter, and perhaps two or three inches long; and lastly, that of the sand-hills, where it is sometimes as many feet. A little way from the harbour is a preventive station. The guard told me he had been there six years, and that soon after he came a large part of the cliff, above 100 feet in width from his description, gave way, and descended so gradually into the sea that a person might have stood upon it without danger.

As there are few habitations in the country there are few paths, and walking over a close, continued bed of heath and furze is very fatiguing. As there are no cattle and no sheep there are no tracks. I saw notices of cattle taken in to graze, but what they were to feed upon I do not know. I saw no cattle, nor even a sheep, and the whole appearance of the country is that of barrenness, more than answering to Col. Martin's celebrated description of the land in Conemara.

Mr. Borrer was to come on Tuesday evening to Bourne Mouth;

meanwhile I got into the omnibus and proceeded to Parkstone, a very pleasant place overlooking Poole harbour, and walked along the shore of the harbour to a place called in the Ordnance map Lilliput. It is a very pleasant walk, and just below Parkstone I got *Carex extensa*, *Schoenus nigricans* and *Scirpus uniglumis*. The latter is, I believe, a good species, though we find at Lewes a form in some degree intermediate. Returning there the next day Mr. Borrer showed me *Tillæa muscosa* on the walls of a nursery-ground. As I continued along the shore I saw great abundance of *Oenanthe pimpinelloides*. *Trifolium glomeratum* and *ornithopodioides* occur near the Little Sea. *Bartsia viscosa*, *Briza minor*, *Lotus hispidus* and *Ornithopus perpusillus* were growing near Lilliput. *Cochlearia anglica* abounds by the ditches near the harbour.

On Wednesday I went with Mr. Borrer to Corfe Castle. We gathered in the way *Rhynchospora fusca*, a plant which seems pretty widely scattered on the heaths about Wareham. Mr. Borrer returned on the same day to Bourne Mouth, and after his departure I walked among the clay-pits to the west of the road between Wareham and Corfe Castle. My principal object in taking this direction was to look for *Trifolium resupinatum*. This plant has been found at Poole and near Bristol, and in both instances apparently in connexion with clay which had been brought from the clay-pits of this district. It would therefore be very interesting to discover it here, and to give it an undoubted claim to a place among our native plants; but my search was in vain, the best plant in the walk being *Ranunculus parviflorus*, which occurs in many places in Dorsetshire. *Orchis conopsea* on the peaty heaths had a most delightful odour: on the chalky banks none at all.

The next day I walked down to Cherford Bridge, and thence rambled over Fibsworth Heath. *Erica cinerea* and *Tetralix* were both in good flower, though not perhaps so abundantly so as they will be a fortnight or a month hence; and I hoped to find *E. ciliaris* equally advanced, but in places where my memory represented the *ciliaris* as bearing its full proportion of covering the ground with the other heaths, I could find only a few shabby plants, with hardly any indication of their intending to flower this year. Indeed, if it had not been for a few remaining dried racemes of last year, I doubt if I should have observed the plant at all. In 1839 I gathered it in full flower on the 22nd August, and at Plelan, in Brittany, I had before found it on the 11th July.

In spite of the threatening weather, I set off next morning to trace

the chalk hills on the west of the town, and to ascend Creechborough. These chalk hills are of a much harder substance than those of Kent and Sussex, steep on all sides, and thence with a more mountain-like appearance, and the strata are highly inclined. In Botany they afforded me nothing but *Brachypodium pinnatum*, which is exceedingly abundant on the whole range. Creechborough is a somewhat conical point of sand and gravel, belonging probably to the plastic clay, and apparently overtopping the adjacent chalk hills, but the day was so thick I could nowhere see the horizon, and the rain came on heavily while I was on Kingsbury, and continued till I got back to Corfe Castle, preventing my farther examination of the sand and clay pits for the *Trifolium resupinatum*.

Saturday was fine, and as the glass was rising, I set off for Studland. The road keeps near the chalk hills and above the barren heaths, although it is itself, I believe, almost everywhere on the plastic clay beds. It is remarkable that these beds, where they climb up the back of the chalk hills, as on this road at Kingwood Heath and at Creechborough, have not the extreme barrenness of the lower beds. The strata are, I believe, nearly horizontal, and not inclined with the chalk, at least such is the notion suggested by the appearance of the clay-pits: these upper parts may therefore perhaps belong to a later formation. Over all this tract of country we find a *Rubus* much like *R. plicatus*, but the stem more arched and much more prickly. Mr. Borrer suggests that it may be *R. nitidus*; for my part, I hardly venture to form an opinion on a *Rubus*, but in this plant the shoots are decidedly arched and hairy, the prickles curved, and the stalk of the panicle not polished. The panicle, too, seems to be nearly simple, in all which it differs from Babington's idea of the *Rubus nitidus*.

On this walk, as in that of Thursday, I found *Orchis conopsea* abundant in dry meadows, without smell. The descent into Studland was cheered by *Trifolium glomeratum* and *subterraneum*, and *Medicago denticulata* and *Lotus hispidus*, a pretty group of one tribe growing together. On the beach at Studland, *Cynodon dactylon* was very strong and vigorous, but not yet showing any of its "horns," and beyond it, in considerable abundance, but for the most part not yet in flower, *Filago Jussiei* of Cosson and Germain. This is undoubtedly the *Gnaphalium pyramidatum* of some authors, enumerated as a species or as a variety of *F. germanica*, and I see no reason to doubt its being the *Filago pyramidata* of Linnæus, though Cosson rejects this idea and Koch reasons against it. Linnæus does not describe the heads, but the flower (*i. e.* the compound flower) as pyramidal,

which is strikingly the case in the present plant. The observations of Messrs. Cosson and Germain are abundantly sufficient to stamp it as a good species. Passing over Ballard Down, I observed several of the corn plants of a chalky soil, as *Linaria Elatine* and *spuria*, and all these occur, not only on the chalk and limestone, but also on the intervening clay and loam of the Wealden formation.

After church on Sunday I walked along the shore to the foot of Ballard Down, and then turned inland along the foot of the down. In one of the little drains that trickle from the cliff I got *Scirpus Savii*, and at the foot of the downs *Rubia peregrina*.

On the Monday morning I walked up Nine-barrow Down, one of the highest of these chalk hills. Just before reaching the open country I fell in with two tufts of *Iris foetidissima*, with yellow flowers. I was the more struck with this, as Mr. Borrer had just been mentioning that he thought he had seen such a thing in the gardens at Hampton Court.

My chief object at Swanage was the *Phalaris paradoxa*, but the discoverer, Mr. Hussey, was not at Swanage. However, I found that Mr. Willcox, a surgeon of the place, was well acquainted with the plant and its habitat, and he kindly undertook to conduct me to the spot, premising, however, that the field had become a potato-ground, and that none of the plant was to be found. We of course looked in vain. It seems to have been pretty abundant in a space of about thirty or forty yards square, in one corner of a corn-field, and there was no account of any foreign seed having been sown there at any time. The soil seemed rather a stiff loam on the Wealden beds, some of which on the Isle of Purbeck are very sandy, but that is not the case in this field. Leaving this field and crossing a lane we came on the yellow variety of *Iris foetidissima*, which may therefore be presumed to be not very uncommon in this neighbourhood. A *Daucus* abounds here, which I take to be the *maritimus* of Withering and *hispidus* of De C., at least as far as regards the French plant, but of course the fruit was not yet formed. Mr. Willcox informs me that the poor employ it as a diuretic. Mr. Willcox possesses a very interesting collection of the fossils of the neighbourhood, particularly of the fishes found in the Purbeck beds, and also some leaves from the plastic clay.

On Tuesday I proceeded by stage to Wareham, and thence by railroad to Wool. There I engaged a lad to take my luggage to West Lulworth, and proceeded myself on foot, but the walk is not interesting; yet had the day been fine I should probably have found amuse-

ment in the distant views; for the road lies very high for a considerable portion of the way. The interest of West Lulworth lies entirely in its singular broken shore, where we see the Purbeck limestone rising from under the chalk hills, with more or less of the strata of the Wealden and of the green sand between them. In one or two places the strata are absolutely reversed, and the green sand appears to rest on a chalk very full of flints. The chalk strata are very much inclined, or quite vertical, as in the Isle of Purbeck, but the singularity is, that there and here, these highly inclined strata are backed by horizontal strata of chalk. A little way west of West Lulworth is a perforation in the limestone rock called Duddle Door, and near this we find abundance of *Statice spathulata*. The leaf is rather broad, with an uninterrupted margin continued behind the mucro. In Sussex we have a variety with a broader leaf, but in which the mucro is usually or always terminal. *Crithmum maritimum* is abundant both on the chalk and the limestone, and on the chalk a form of *Arenaria marina*, with a very stout, woody root, showing several concentric circles. Most botanists describe *A. marina* as an annual, I doubt if correctly, and Babington inserts a p. ? *Erythræa latifolia*, I believe, occurs on the intermediate Wealden, but I am not very confident in my power of determining this species. In the little bay between Duddle Door and Lulworth I observed a good deal of a *Brassica* which I had noticed in August, 1837, in this neighbourhood, distinguished from *B. oleracea* by the turgid and seed-bearing beak. My friends Mr. Borrer and the late Mr. Janson have assured me that it retains this character in its progeny, and both agree that the plant is distinguishable in all stages, though it would perhaps be difficult to describe the difference so as to identify the plant independently of the pod. I found this plant again the next day, on the little opening to the shore which exists at East Lulworth, on the chalk cliffs. I did not anywhere observe it on the limestone, but Mr. Willcox informed me that the quarry-men in Purbeck make use in the spring of a cabbage they find on the cliffs. Query if this is the same, and also if the plant of Dover cliffs have a seed in the beak. De Candolle has a section of the genus *Brassica* distinguished by having a seed in the beak, but these, with the exception of *B. Richeri*, belong to the genus *Erucastrum*. The German and Italian Floras do not mention *B. oleracea* as a wild plant, and they have no species to which this can be attributed; for though two or three of them have constantly or occasionally seeds in the beak, the descriptions are very different in other

respects. Loiseleur mentions *B. oleracea* as native of the Atlantic shores of France, which Duby limits to those of Normandy.

On the top of the chalk cliffs near Duddle Door grows *Erodium maritimum*, and on the banks above a large corn-field, east of West Lulworth, there was abundance of *Ophrys apifera* and a few plants of *Orchis ustulata*. These are all the rarities I noticed in the neighbourhood. On my return through Wareham I examined a plant which is probably the *Ceanothe fluviatilis* of Coleman, though the description does not quite agree. The place where I was able to get at it was just above a mill on the Piddle, a little above Wareham, in a gentle current, and the water perhaps two feet and a half deep. The stems there were erect, very hollow, not angular, and somewhat thickening downwards to the root, but with a slight contraction between the root and the stem, with numerous whorled fibres, but not so numerous or so thick as in *C. Phellandrium*. In other places, in a stronger current, the stems were drawn out as described by Coleman, and appeared not to thicken from the middle downwards. The submersed leaves exactly correspond with his figure and description; but though I feel confident that they belonged to the same plant, I could not get up any in connexion with the flowering stem, which produced no leaves entirely under water. It does not appear that *C. Phellandrium* has any of these submersed leaves at this time of year. The plant is abundant in the Frome and Piddle, and also in the Avon, and probably in the Stour, flowering freely, but at present the seeds are of course very imperfectly formed. Wareham stands on a sandy point of land between the rivers Frome and Piddle, and its ancient boundaries are marked on three sides by an earthen bank, forming a pleasant walk. The fourth is formed by the river Frome. This projecting point, though sandy, is of not so barren a soil as the heaths which occur at a little distance both on the north and south sides of the town. From Wareham I returned by railway direct to Lewes.

JOSEPH WOODS.

Lewes, August 1, 1848.

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*On the Number of Botanical Species to a Square Mile of Ground.*

By HEWETT C. WATSON, Esq..

IN the 'Phytologist' for this present month Mr. Coleman intimates his opinion, founded upon observations in the county of Hertford, "that if a square mile be taken at a venture, its flora may be considered a good one if it amount to as many as 200 species" (Phytol. iii. 220). Were it possible for a botanist to map out the whole of Britain into square mile sections, and fully ascertain the species of each section, I think it probable enough that 200 species to a mile of rural surface might prove over rather than under the average number. In a general sense, I may therefore concur with the opinion expressed by Mr. Coleman, although there is some degree of discrepancy between us.

On some of the elevated moors of Scotland, where the surface is pretty uniform, and is still left almost in a state of nature, many square mile sections might likely be found each containing less than one hundred, possibly even less than fifty species of flowering plants. But in England I doubt not that many square mile sections might also be taken, within which a botanist would find more than 300 species, and in several of them more than 400.

By way of putting this to a practical test, since reading the valuable paper by Mr. Coleman, I have reckoned up the species on a square mile of surface immediately around my own house. I find that nearly 400 species can be enumerated as certainly wild within the extent of the mile; and if adding to the list about a score of introduced and unsettled species, the number may be raised to 410 species or upwards. By enlarging the boundaries so as to extend the single mile into a space of twenty-five square miles, I find that my enumeration will give 660 species, including aliens and unsettled species or varieties. The whole county of Surrey would probably be found to include upwards of 800 species, fully double the number in the single square mile.

I take the square mile immediately around my own abode, as being that one with the productions of which I feel myself most familiar. It presents considerable diversity of situation for plants, with little variety of soil; the latter being either clayey loam or gravel, with a few very small patches of sand. The mention of a dozen generic names will indicate tolerably well the variety of situation; namely, *Hydrocharis*, *Actinocarpus*, *Calluna*, *Jasione*, *Verbena*, *Lycopsis*, *Helminthia*, *Briza*, *Silaus*, *Hyacinthus*, *Circæa*, and *Orobus*.

I must now beg leave to apply the above fact in corroboration of a conjecture hazarded in print a dozen years ago, and which has been referred to by Mr. Coleman, from memory, not quite correctly. In the same paper from which I take the short extract quoted above, that gentleman writes thus:—"The data acquired in the course of the investigation of the flora of the county in question on the above plan, may serve to correct the statement of Mr. Watson (in one of his works, which the writer has not now at hand to quote with precision), to the effect that a single square mile will be found to contain half the species of a county. This, however, will be found to be a considerable overstatement, unless a square mile be selected containing every variety of soil and situation." (Phytol. iii. 220).

But on reference to the passage, as actually printed in one of my earlier volumes, I do not find any positive statement, but simply a conjecture on the subject; and the conjecture is only to the effect, that a square mile may be found containing half of the species of a county, without implying that any or every square mile "taken at a venture" will contain so large a number. After showing that the average number of species in twelve local floras for counties or lesser tracts does not greatly exceed 700, I added the following remark:—"On the average, a single county appears to contain nearly one half the whole number of species found in Britain; and it would, perhaps, not be a very erroneous guess to say, that a single mile may contain half the species of a county." ('Remarks on the Geographical Distribution of British Plants,' pp. 41—42. 1848).

HEWETT C. WATSON.

Thames Ditton, August 3, 1848.

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BOTANICAL SOCIETY OF LONDON.

*Friday, August 4, 1848.*—John Reynolds, Esq., Treasurer, in the chair.

The following donations were announced:—

British plants from Dr. Mateer, Mr. Daniel Stock, Miss Griffiths, Mr. Daniel Oliver, jun., Mr. P. Gray, and Mrs. Russell. Foreign plants from John Ball, Esq. Part III. of Vol. 11 of 'Journal of the Statistical Society of London,' presented by that Society. A complete set of the 'Journal of the Pharmaceutical Society,' presented by that Society.

The Rev. R. H. Webb, of Essendon, Herts, William Godley, Esq., of Hallingford, Berks, and F. A. Gace, Esq., of Camberwell, were elected members.

Mr. Hewett Watson presented specimens of Jordan's *Filago canescens* from Claygate, and *Filago lutescens* from Fairmile, both in Surrey. These plants are two forms of the Linnean *Filago Germanica*. The former is the commoner British form; the latter of the two (*F. lutescens*) probably answering to the Rev. G. E. Smith's *F. apiculata*, although some parts of Mr. Smith's description of this plant seem more applicable to *F. Jussæi* of Jordan. A plant scarcely distinguishable from *F. Jussæi* has been lately found near Walden, in Essex, by Mr. G. S. Gibson. Other specimens of *Filago* were also exhibited from Mr. G. S. Gibson, sent by that botanist as examples of *F. Jussæi* and *F. apiculata*. Mr. Gibson's specimen of the latter, gathered at Thetford, appears quite identical with Mr. Watson's specimens of *F. lutescens*; and Mr. Watson intimates that the form considered by Mr. Gibson to be *F. Jussæi* (*Coss. and Germ.*) occurs in several places about Esher and Thames Ditton, intermingled with the more usual form of *F. Germanica*, which latter is the *F. canescens* of Jordan.

Mr. Gibson also exhibited specimens of *Apera interrupta*, found by the Rev. W. W. Newbould near Thetford, and of *Orobanche Picridis*, found by the same gentleman at Comberton, near Cambridge.

Mr. S. P. Woodward communicated a paper, being "Notes on the Flora of Gloucestershire."—*G. E. D.*

*Notes and occasional Observations on some of the Rarer British Plants growing Wild in Hampshire.* By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 213).

*Malva moschata.* In various parts of the county and the Isle of Wight, not uncommon in woods and hedges. Hayling Island. About Clanfield.

—— *sylvestris.* A rare and beautiful variety of this otherwise abundant plant grows on chalky declivities amongst corn-fields above Sandown Bay, Isle of Wight, at an elevation of some hundreds of feet above the sea. The flowers are of a delicate, pale, nearly sky-blue colour, much like those of *Cichorium Intybus*, but with a slight

shade of purple. I found some years since, at Ryde, another singular variety of this species, in which the flowers were hardly one-fourth the usual size, of a deeper, more uniform purple, with fainter streaks, the petals narrower in proportion, more acutely notched, and scarcely equal to the columns of fructification which protruded in the yet not half expanded flower-buds. As Dr. Salter, to whom I showed it, aptly remarked, this variety stands in the same relation to *M. sylvestris* (the common form) as *M. pusilla* does to *M. rotundifolia*. I have not since fallen in with this remarkable plant. Two additional forms of *M. sylvestris* occur in this island, the one with an erect, the other with a prostrate stem. A beautiful variety with white flowers of a satin lustre grows at Norton, Isle of Wight, and in Hayling Island.

—— *rotundifolia*. Not so common in the Isle of Wight as *M. sylvestris*, though generally distributed over the island, and I presume the entire county. Most frequently here in or about farm-yards.

‡ *Lavatera arborea*. Said to grow wild at Hurst Castle, on the authority of Pulteney, but I could never find it there or elsewhere in the county where it could be deemed indigenous. Universally cultivated in the Isle of Wight, and occasionally found on waste ground as a stray from cottage-gardens. Sparingly naturalized on a rock at Ventnor.

*Althæa officinalis*. Abundant on many parts of the coast both of the mainland and island, in salt-marsh ground, and along tide rivers and creeks. Hayling Island.

*Tilia parvifolia*. Truly wild in aboriginal woods on the chalk at Bordean Hill, near Petersfield, especially in Ridge Copse, and in a sloping wood adjoining the old chalk-pit on the right going up the hill (where *Herminium Monorchis* grows), not sparingly, May 24, 1848. The trees being here treated as "rice" (German *Reis*, *Reisholtz*, *Reisig*), or brush, are cut periodically with the copse wood, the beeches alone being allowed to stand, and hence appear only as large shrubs, ten or twelve feet high, with wood of insufficient age for flowering. The lime here puts on its most perfectly wild form, the leaves extremely small, the largest even on the young and succulent shoots not exceeding three inches in breadth, the others much less ( $1\frac{1}{2}$  or 2 inches). These are very deeply cordate, and nearly equal at base, usually about the length of their foot-stalks, dark green above, glaucous beneath, and quite glabrous, but some of the trees have leaves of a light bright green, with red foot-stalks, which may possibly prove to be *T. europæa*, hardly distinct, as Fries\* remarks, from *T.*

\* *Corpus Flor. Provin. Suec. Fl. Scan.* p. 80.

*parvifolia*, in which opinion I am inclined to agree with him, having often met with cultivated limes I felt at a loss to refer to either of the two supposed species; and in the present case I find no difference but that of colour by which to distinguish them. The woods at Bordean are of purely native growth, and consist principally of beech, intermixed with oak, ash, maple, birch, elm (*Ulmus montana*), and lime, with an undergrowth of white rice (*Pyrus Aria*), whip crop (*Viburnum Lantana*), hazel, spindle-tree, &c., with here and there an old stock of yew and juniper. I understand the lime occurs in the woods of the Hon. Mr. Gaze, of Westbury, near West Meon: I have observed it apparently wild near Lymington; and I apprehend that Lyndhurst, in the New Forest, may owe its name to a prevalence there of this tree in former times. In the Isle of Wight *T. parvifolia* is very rare, being confined to a single locality, a small patch of copse-wood, surrounded by fields, near Yarmouth, where it is very abundant, and, as I from the first thought, truly indigenous, an opinion in which I am the more confirmed by its subsequent detection at Bordean in an indubitably native state.

\**Hypericum calycinum*. Naturalized on banks of slipped clay along the shore a little west of Ryde, unquestionably introduced, and I believe never perfecting seed. Extensively planted in shrubberies.

———— *Androsæmum*. In various parts of the county, by no means rare. (See 'New Botanist's Guide' for several stations). Woods at Clanfield. Very common in the Isle of Wight, where there are few woods or thickets in which it may not be found, though seldom in any plenty in one spot. A beautiful ornament to cover deep hollow lanes and dells from its broad handsome foliage of delicate green.

———— *quadrangulum*. Abundant in wet thickets, on ditch-banks, &c., in the island and county generally.

———— *maculatum*? or *H. dubium*, rare? Borders of fields at Millbrook, near Southton, Mr. H. C. Watson! Hill Lane, Southton, Mr. T. B. Flower! Both these gentlemen are undecided as to which of the above species, if such they be, their plant is referrible. Besides the obtuse sepals, the leaves of both these species or varieties are copiously reticulated beneath with pellucid anastomosing veins, taking the place of the dots so conspicuous in those of *H. perforatum*, and by this mark the two species may be readily distinguished in their earliest stage of growth, when the former might be easily confounded and passed by for the broad-leaved form of the latter to be noticed presently. This essential and unvarying character has been totally

overlooked by British writers, and was first pointed out to me by my friend Dr. Wood, of Manchester, but had long before been observed and recorded by Wahlenberg.\* Since the above was written I have gathered *H. maculatum* in the woods and lanes about Clanfield, August 8, 1848. This certainly coincides with the description given in Babington's Manual of *H. maculatum* rather than with the same author's diagnosis for *H. dubium*, the stems being very distinctly quadrangular, the sepals mostly minutely denticulate, obtuse and submucronate, but many of them are also quite entire, and occasionally a little pointed, and vary in shape on the same plant from ovate-elliptical to broadly-elliptical, but hardly at all lanceolate; the whole question betwixt this and *dubium* being purely one of degree, and therefore leading naturally to the inference that both are states of one and the same plant.

*Hypericum perforatum.* In great abundance all over the county and Isle of Wight, in almost every soil and situation. Of this we have two well-marked forms or varieties, if their extreme phases alone be regarded, but to which limits are unassignable. 1st. The narrow-leaved variety, *H. perforatum*, *β. angustifolium*, Gaud. &c., *H. veronense* of Schrank, the leaves of which are narrowly elongate-oblong† or many times longer than broad. This form is common in certain parts of the Isle of Wight, both in open places and in woods, more usually the former. For further remarks on this variety see 'Phytologist,' vol. i. p. 461. 2nd. The broad-leaved form, *H. perforatum*, *γ. latifolium*, Gaud., distinguished by the greater size and breadth of the leaves, particularly of those on the main stem, where they are truly and broadly ovate, often an inch to an inch and a half in length. This state of the plant is usually to be seen in woods and under hedges, sometimes in

\* Fl. Suecica, 1st edition, 1826, ii. p. 476.

† I use the terms *elongate-oblong*, *elongate-lanceolate*, *elongate-elliptical*, to imply an oblong, lanceolate or elliptical superficies, drawn out or produced with straight sides, assuming the curve proper to each figure at the extremities only. I would instance as an example of the second the leaves of *Epilobium angustifolium*, or of *Salix fragilis*. The phrase, which long since occurred to me, and which I have constantly used in MS., though I know not what claim I can lay to its invention, strikes me as more precise and correct than the term *linear*, which as employed in botanical language is widely different from the idea commonly entertained of a *linear* object, or one whose dimensions approach much nearer at least to the mathematical definition of a *line*, "length without breadth." The addition of "narrowly" or "very narrowly" to the above epithet describes gradations of contraction in width fully as well, if not better than to talk of "narrowly or very narrowly linear," whilst the incorrectness of a glaring pleonasm is avoided.

open fields and pastures, and so closely resembles *H. dubium* or *maculatum* in aspect, that without examination of the stem, leaves, and sepals, it might pass for either of those species, more especially as the latter are occasionally a little obtuse and broader than in the ordinary form of the common St. John's-wort, and the lower leaves are more sparingly dotted, or in some cases nearly imperforate, but the ancipital stem and absence of the pellucid net-work will prevent any possibility of confounding it with *H. dubium* or *maculatum*. This broad-leaved variety would appear to be a mere southern, or at least a mere western form, as Koch, whose observations on the three states of *H. perforatum* under consideration are excellent,\* says that it is unknown in Germany, being found only in Switzerland and upper Italy. It is certainly common enough in England, and abounds in some parts of this island and county, but the figures and descriptions of the German, Swedish, Danish, and other floras of central and northern Europe, seem to apply to our third and intermediate variety, by far the most general, with oblong-elliptical leaves both on stem and branches, and which grows indifferently in woods and open situations. This too is the only American form of *H. perforatum*, which grows abundantly in that country, from Canada to Carolina, though supposed to have been originally imported, and lies under the imputation (certainly a most unjust one) of causing ulceration in the backs of cattle that pasture where it is frequent. The *H. intermedium* of Petermann (Fl. Excurs. Lipsiensis) agrees well with our broad-leaved variety in every thing but the flower, which the author describes as being much smaller than in *H. perforatum* or *dubium*.

*Hypericum humifusum*. Frequent in dry fields, and heathy, sandy places in the county and island.

———— *montanum*. This most elegant species is rare and very local in the Isle of Wight, being exclusively confined to the rocky districts of the Undercliff and the south-eastern angle of the coast betwixt Luccombe and Bonchurch. I have no recorded mainland station for it at present.

———— *pulchrum*. This charming and graceful St. John's-wort enlivens abundantly our sandy woods and heaths with the bright array of gold, scarlet, and crimson of its buds and blossoms.

———— *elodes*. Common I believe in most parts of the county in marshy places, as on Petersfield Heath and near Lymington, &c. Abundant in some parts of the island in drains and ditches, but local.

\* Deutschland's Flora, Vter. Band. s. 348.

*Acer campestre.* Woods, thickets, and hedge-rows, everywhere throughout the county and island, most abundantly, constituting a considerable proportion of the ligneous vegetation. Specimens of this neat and pretty little tree, of considerable size and height, are frequent in various parts of Hampshire and the Isle of Wight, but the wood, formerly much esteemed for cabinet work, is now very little sought after.

—— *Pseudo-platanus.* Not unfrequent in woods, thickets, and hedge-rows, and often far enough from habitations, but certainly a naturalized and not aboriginal tree in the south of England, though I suspect it to be indigenous to mountainous situations in the northern counties, where it attains to a greater bulk and stature than it commonly reaches here. We have few fine sycamores in this island, and none of any extraordinary magnitude that I know of in the county. I have seen seedlings of this tree springing up by thousands on the bare sides of our chalk downs, but whether they perish from something uncongenial in the situation, or are browsed down by the sheep, I know not, but they rarely are found to establish themselves in these exposed localities.

*Geranium pratense.* Very rare, nor have I yet seen Hampshire specimens of this or of the following. Field at Breamore, Miss May. Walworth Road, Andover, Mr. Wm. Whale. Thought to have been found in a field near Ryde, as I hear from my friend Mr. Wm. Wilson Saunders, but I have never met with it in the island.

—— *pyrenaicum.* Widely : Dr. Pulteney in Hamp. Rep.

—— *pusillum.* Fields and waste places, but not common. In several parts of the Isle of Wight, and doubtless also on the mainland, though I have no station to give for the latter.

—— *molle.* Abundant almost everywhere in the county and island, exhibiting considerable difference in the size and colour of the flowers, which vary from bright pink or purple to white or nearly so. A larger, more erect form, with larger flowers, I find occasionally here and across the Solent, which might be mistaken, as I did on first sight, for *G. pyrenaicum*. This, which I unfortunately neglected to examine particularly, is probably identical with a plant not uncommon at the back of the Isle of Wight, according to Mr. J. A. Hankey, closely resembling *G. molle*, but having the carpels neither wrinkled as in that, nor hairy as in *G. pusillum*, and which both that gentleman and Mr. W. W. Saunders conceive may be the *G. pyrenaicum* of Reichenbach, not of Smith, &c. May not the Widley plant be this or my large variety above mentioned, and all three identical



with the *G. molle*, *β. equale*, of Babington's Manual? Another but very small flowered variety, with petals scarcely longer than the calyx, and more deeply cut leaves, approaching *G. pusillum*, and hardly distinguishable from it but on close examination of the stamens and carpels, I have found occasionally in the island, but very rarely.

*Geranium rotundifolium*. In rough, rocky pastures and thickets about St. Lawrence and Woolverton, Isle of Wight, plentifully, but not noticed elsewhere either in the island or on the mainland so far as I can learn.

——— *dissectum*. Extremely common and often most abundant throughout the Isle of Wight and county generally, on dry bank-hedges and waste places; very rarely the flowers are white with us.

——— *columbinum*. Dry banks, woods, and copses, abundantly in several parts of the Isle of Wight, but not general. Between Andover and Weyhill.

——— *lucidum*. In various parts of the county and Isle of Wight, on dry rocky or chalky banks and walls, but by no means common, though usually plentiful enough where found. Hedge-banks a little way out of Petersfield, towards Stroud Common. This very pretty *Geranium* is said to be extremely rare in the adjoining county of Sussex.

——— *Robertianum*. Everywhere plentiful in damp, shady places, occasionally with white flowers. The var. *β. purpureum* abounds on the flat shore of Stokes Bay, and near the Priory, Isle of Wight.

*Erodium cicutarium*. Common on dry, sandy ground and banks, particularly along the coast, here and there with white flowers.

†? ——— *moschatum*. Pastures and borders of fields. Found a few years back near Yarmouth, by Mr. Butler, of the Bugle Inn, but since searched for unsuccessfully on the station, which looked like a wild one. I have it, as gathered near the same town, in a list of plants of the island lately received, but have never met with it wild in the county myself, or seen Hampshire specimens.

——— *maritimum*. Dry banks and pastures by the sea in the Isle of Wight, but very rare. Brook Chine. Abundant at Alum Bay, along the descent to the beach, and especially plentiful and luxuriant about the mouths of the rabbit-burrows. I do not know of any mainland Hampshire station for this plant.

‡ *Linum usitatissimum*. Fields: accidentally introduced, scarcely even naturalized. I found it August 8th, 1843, in some plenty in a field opposite Cliff farm, by Shanklin, along with *L. angustifolium*,

but sought it there in vain the following year. About Kenner, by Mr. D. Snooke, but I have never met with it elsewhere or since then in this island. The corymbose disposition of the branches is a good auxiliary character to distinguish this species from *L. angustifolium*, which has the branches singularly lax, irregular and divaricate, with the dissepiments of the capsules hairy.

?*Linum perenne*. Wrickham: Dr. Pulteney in Hamp. Rep. Of this I have not seen specimens, and should fear the next species may have been mistaken for it, though Pulteney was an accurate observer, and mentions the latter as well in his list, from which I quote.

—— *angustifolium*. Extremely common all over the Isle of Wight, in dry soils, sandy fields, on banks, and by road-sides. Abundant, even to profusion, in some places about Ryde, Shanklin, &c. Less frequent, I believe, on the mainland, at least I do not remember to have noticed it in plenty out of the island.

—— *catharticum*. Abundant all over the county and Isle of Wight, in dry fields and on the chalk downs, &c.

*Radiola Millegrana*. Damp, sandy places, and on heaths, apparently (from its small size) rare in the Isle of Wight.

*Oxalis Acetosella*. Woods and shady places, not unfrequent throughout the county and island.

†—— *corniculata*. Naturalized in one or two places in the Isle of Wight, but sparingly, and not extending itself much. At Steephill and at Alverstone Mill, Albert Hambrough, Esq. I could not find it this spring at the latter station.

*Euonymus europæus*. Extremely common all over the county and island in woods, thickets and hedges. Called in the Isle of Wight skewer or skiver wood, being much sought after for making that implement for the butchers. A variety with smaller, very dark green and shining leaves is frequent in the island.

*Rhamnus catharticus*. Less general than the last, but still very frequent on mainland, Hants, especially in the interior of the county remote from the sea, and on the chalk. About Southampton. Plentiful about Chilcombe and elsewhere near Winchester. Abundant, almost to profusion, in woods and hedges in and about Appleshaw. Andover, on the road to Weyhill, in plenty. Woods at Borden, Petersfield, Clanfield, West Meon, East Meon, &c. Decidedly rare in the island, and there exclusively confined to the chalk, and to the interior hills and valleys, nowhere approaching the sea-coast, even where its favourite rock juts out on the shore. The eastern or continental tendency of this shrub is evidenced by its diminishing fre-

quency in proportion as we advance westward. In the south-western counties of England and in Wales it is already rare, and extremely so in Ireland, and in the equally maritime climate of Scotland.

*Rhamnus Frangula*. In damp and sterile woods, thickets and heathy ground in very many places, and perhaps general over the entire county. Plentiful in woods about Bishop's Waltham, Botley and Fareham. Near Southton. Very abundant in some parts of the Isle of Wight near the coast, as well as inland; being a much more gregarious shrub than the last, it forms a considerable part of the brush or "rice" in the woods, and sometimes attains a height of ten or even twelve feet, and is by no means devoid of beauty. I do not remember ever to have seen it on the chalk, and here it is generally an evidence of a poor, unprofitable, or ill-drained soil.

*Ulex europæus*. In vast profusion on heaths, commons, and in woods all over the county and island, and which are lighted up by it in April and May with one blaze of golden splendour. It was this plant, and not the broom, as Mr. Gardiner, in his 'Flora of Forfarshire' represents, that incited the immortal Swedish naturalist to the ecstatic genuflexion recorded of him. The latter is a native of Sweden, and Linnæus must have been familiar with it in his tour through Scania, as indeed appears from his mention of it in the 'Itur Scanicum.' Seeds very variable in number, from three or four, to ten or twelve, though usually *about* ten, as Mr. Babington remarks; not all perfected.

— *nanus*. Very common on heaths, &c., flowering in autumn, in the Isle of Wight, and I presume through the county, yet I cannot satisfy myself that it is truly distinct from the foregoing.

*Genista tinctoria*. Abundant in many parts of the Isle of Wight, the pastures being sometimes quite yellow with it. I have not noticed its degree of frequency in the county at large, but believe it to be generally common. Hayling Island.

— *anglica*. In moory pastures and wet, spongy bogs, not rare in the Isle of Wight. About Southton. On Petersfield Heath and various other parts of the county.

*Sarothamnus scoparius*. Abundant in woods, copses, and rough, bushy pastures throughout the county and island, often attaining to a large size, ten, twelve, or fourteen feet, with a trunk as thick as the arm. I once picked it with white flowers, in Sandown Bay, Isle of Wight.

*Ononis arvensis*. Extremely common. A variety with very shaggy stems and leaves grows in considerable plenty on Ryde Down at its

upper end, and is doubtless that mentioned in the Dillenian editions of Ray's Synopsis, tom. ii. p. 332, No. 3.

*Ononis antiquorum* ? Probably not uncommon, but I have not (as yet) paid much attention to our two assumed species. A spinous form, with very small, narrow and elliptical leaves, and remarkably erect, compact branches, with flowers rather more upright and crowded than usual, I found on a sea-bank, in the marshes between Cosham and Farlington, near Havant, July 28th, and which I suppose is referrible to the present species, if such it be. In that case I have no station recorded for *O. antiquorum* in the Isle of Wight.

† *Medicago sativa*. Here and there naturalized in pastures and by way-sides. Persistent in a pasture field by Bonchurch farm for several years past, the remains of some former crop.

—— *lupulina*. Abundant in dry, waste places almost everywhere.

—— *maculata*. Very common, and in some places profusely, in the Isle of Wight, in pastures, waste ground, and even in woods. I am unable to speak of its comparative frequency on the mainland, where it is not rare, at least along the coast.

—— *denticulata*. Very rare? Abundant on the steep banks above Sandown Bay, near the Culver Cliff, a little below the summit or crest of the bank, for many yards. Perhaps not uncommon, but overlooked for its congenerous species.

*Melilotus officinalis*. Very abundant in woods and on banks in various and distant parts of the Isle of Wight, but not very universal. It covers the banks of slipped clay about Sea View and the Priory, in many places along the shore. I have observed bees attracted to the mellifluous flowers of this plant in great numbers. My reasons for believing the yellow melilot to be biennial and not annual will be found in the 'Phytologist,' vol. ii. p. 330.

†—— *vulgaris*. Occasionally and sporadically in cultivated fields, chiefly amongst clover or lucerne, with which there is little doubt it has been introduced, nor have I seen it apparently wild in any part of the county.

*Trifolium medium*. Singularly rare, if it has not been overlooked by myself and others, as I suspect, for the universal *T. pratense*. Near the shore by the limekiln, a little to the westward of Cowes, Isle of Wight, Miss G. E. Kilderbee!! In Firestone Copse, at the point of junction of the roads to Ninham and Haven Street, in great plenty and very fine, Dr. T. Bell Salter. Near Netley Abbey, Mr. W. L. Notcutt. The scarlet trefoil, or as it is here called, *Trifolium* (*T.* in-

carnatum), occurs occasionally as a stray from cultivation, but is hardly naturalized.

*Trifolium arvense*. Sandy fields, but not very common. On Ryde Down. Very abundantly and of most luxuriant growth on the sandy banks of debris at the foot of the cliffs in Sandown Bay, Isle of Wight. At St. Helen's, and a few other places. Extremely abundant on the south beach, Hayling Island, the heads of flowers often subglobose, and the whole plant dwarf, when it is probably the variety of Ray's Synopsis, Dillenian edition, vol. ii. p. 330, to judge from the description, figure, and nearness to the locality given in that work.

—— *striatum*. Sandy fields and pastures not uncommon in the Isle of Wight. It used to be frequent on Ryde Down, which, before that piece of ground was built over, produced the greater number of the rarer species of this genus indigenous to Britain, along with many other interesting plants now extinct, or nearly so, in that locality.

—— *scabrum*. In various parts of the Isle of Wight on sandy and chalky fields, pastures and banks, but not very common. Ryde Down, &c.

—— *glomeratum*. Sandy places, but rare. In several parts of the Isle of Wight. In some plenty with the next on Ryde Down a few years since. Sandown Bay. St. Helen's. Freshwater, near Ly-mington, at Woodside, 1848.

—— *suffocatum*. Sandy pastures by the sea; very rare? Profusely on Ryde Down in 1843, and still to be found there by diligent search, but a great part of the ground on which it grew is now broken up and built upon. Red Cliff, at the extreme south point of the island on which St. Catherine's lighthouse now stands, Mr. G. Kirkpatrick.

—— *subterraneum*. Frequent in the county on dry, short pasture ground. About Southampton. Very common in the Isle of Wight, its long, slender flowers conspicuously whitening the turf in many places. On Ryde Down, &c.

—— *fragiferum*. A plentiful species in rather damp meadows and pastures in most parts of the island, and I believe of the mainland also. I am not prepared to state the comparative frequency of this and of our other trefoils over the latter division of the county, not having directed my attention to the point, or received notices of their occurrence from others. The species belonging to the remaining division of the genus, with yellow flowers, namely, *T. procumbens*, minus and *filiforme*, are all common weeds of the entire county.

—— ? *ornithopodioides*. Dry banks and pastures, rare? pro-

bably only apparently so, from its small size. On Ryde Down, and a few other places in the Isle of Wight.

*Lotus corniculatus*. Everywhere most abundant in fields, pastures and on heaths; particularly fine on the sea-banks in Sandown Bay, usually with somewhat fleshy leaves (the var., I suppose, *γ. crassifolius*). Another form, with long, silky hairs on the stems and leaves (the var. *β. villosus*), occurs in several parts of the island in damp pastures and on ditch-banks. The state with filiform, decumbent stems, and narrow, fleshy leaves and stipules (*L. corniculatus*, var. *tenuis*) is not unfrequent in drier places by way-sides, &c., and looks very much like a species. Mr. Borrer suspects this last is at most biennial, if not annual, since he cannot preserve it in his garden, the old plants dying off after perfecting seed, a fact which would go far to establish its claim to distinction.

—— *major*. Common in wet meadows, by ditches, &c.

—— *angustissimus*. Abundantly for at least fifty yards on a bank facing the south, in Stokes Bay, by Gosport, a little to the westward of Anglesey, Miss Jane Garrett!!! Not yet found in the island.

*Anthyllis vulneraria*. Pastures, but not very common, at least in the Isle of Wight. A very large variety, two feet high, with far larger leaves and paler flowers (the *A. maritima* of Schweigger), grows abundantly on the steep banks at the upper end of Sandown Bay, forming great tufts. The red-flowered variety, *β. Dillenii*, has not been found in this island or county.

*Astragalus glycyphyllos*. Very rare, at least on the island, where it is confined to three localities, in rough, rocky pasture ground, near Niton, but there most abundant and very fine.

N. B.—*Astragalus hypoglottis*, recorded in 'Botanist's Guide' as found on Carisbrook Castle Hill by Mr. Griffith, certainly does not grow there at present, and I question if it ever did. Mr. Griffith seems to have been a most inaccurate observer, as I shall have occasion to show subsequently, and to have committed strange mistakes in his reports of species.

*Vicia hirsuta*. Common in corn-fields, woods and pastures. In great profusion on sandy banks near the Culver Cliff, in Sandown Bay, growing by itself in great patches, and of extraordinary size.

—— *tetrasperma*. In similar places with the last, and about equally common, sometimes approaching the following pretty closely, even to rendering distinction difficult.

—— *gracilis*. In cultivated fields, woods and hedges not unfrequent and sometimes very abundant in the Isle of Wight, but uncer-

tain and capricious in its stations. I am still more than half inclined to regard it as a mere variety of the last, finding most of its characters prone to variation, but in deference to the opinions of others I here keep it distinct.

*Vicia sylvatica*. Woods, very rare? Decidedly so in the Isle of Wight, where this most elegant of our vetches may be seen in Luccombe Copse, by the road-side from Shanklin to Bonchurch, profusely investing the bushes with its festoons of gayest verdure, and long clusters of "pale and azure pencilled flowers:" a spectacle most delightful and refreshing to the eye of a southern botanist. It formerly grew at the entrance to Bonchurch, as I learn from my friend Mr. Curtis, who has figured it from thence, but I cannot find it there now. In a wood near the east turnpike at Appleshaw, Mr. Borrer in Bot. Guide. I find it in the great wood there opposite the church, and also at Redenham House, near the same place, in a wood, abundantly; it is, however, a scarce species in the south of England generally, and I find it difficult to preserve for any length of time in a garden, where for covering arbours it would be most desirable to possess it as a permanent inmate.

—— *Cracca* and *V. sepium* are abundant in woods and hedges all over the county and island.

—— *sativa*. This and its varieties, *V. angustifolia* and *Bobartii*, abound in meadows, fields, and by road-sides, in many parts of the island, particularly on the green sand of the eastern side, as at Sandown, Shanklin, &c.

—— *lathyroides*. In dry, sandy pastures, rare? Banks in Sandown Bay, in considerable plenty, but its chief station on Royal Heath is now destroyed by the late enclosures.

*Lathyrus Aphaca*. Borders of fields and amongst corn; very rare? Grassy bank in the glebe-field at West Meon, the Miss Sibleys, and where I gathered fine specimens, in company with these ladies, in June last. Not found hitherto in the Isle of Wight.

—— *Nissolia*. By no means rare, and often abundant in certain years both in the island and on the main, but extremely capricious in its times and places of appearance, and hardly possible to preserve in cultivation. On grassy slopes above Sandown Bay I find it not unfrequently, and a few years since it was profuse in the gravelly fields about Benbridge. In woods and thickets about Ryde, &c. About West Meon with *Lathyrus Aphaca* it is very frequent, but, as we have just seen, not constant companions; the Miss Sibleys!!!

†?—— *hirsutus*. Open fields, excessively rare. A single spe-

cimen is in the herbarium of Miss Lovell, who picked it in a field near Brixton or Brightstone, in this island, but could not succeed in finding a second. Perhaps introduced accidentally!

*Lathyrus pratensis*. Hedges, thickets and damp pastures and meadows most universal and abundant. A variety with very downy stems and leaves I find between Ryde and Binsted.

——— *sylvestris*. Woods and thickets rare. Abundant but very local in several parts of the island; most frequent in East Medina, about Shanklin and Luccomb. Bordean Hanger, near Petersfield, but picked very sparingly, July, 1848. A variety with considerably broader leaves occurs about the cliffs at Shanklin, and is, I doubt not, the *L. latifolius* said to grow on Sandown Beach, by Dr. Pulteney, in the 'Hampshire Repository.'

——— *palustris*. Boggy meadows; very rare. Heath by Botany Bay, Mr. W. L. Notcutt, 1842. Of this I have seen no specimens.

——— *maritimus*. Sandown Beach, Isle of Wight, Dr. Pulteney in Hamp. Rep. Near Cowes, Mr. Marryat in Baxter's 'Genera of Flowering Plants.' Mr. Baxter informed me that Mr. M. found the plant on the sands near Lord Seymour's (Norris) Castle, E. Cowes. A specimen of what appeared to them to be the leaves of this plant was found in June, 1843, by Dr. Martin and Mr. J. A. Hankey, in Sandown Bay, but I have never been fortunate enough to rediscover it in either station. The continual rapid encroachment of the sea on the shore at Sandown and Shanklin is quite sufficient to account for the disappearance of any plants inhabiting the beach, but the species may be reasonably expected to emerge once more into light and life when circumstances shall again favour the germination of the seeds, now probably lying dormant in their pebbly place of sepulture.

*Orobus tuberosus*. Extremely common in woods, thickets and heathy places in the island and county generally. Of the variety *tenuifolius* I have occasionally picked a specimen in this island, but here, at all events, it seems rather an accidental than a permanent deviation from the typical form.

*Ornithopus perpusillus*. Frequent on sandy or chalky pastures and banks in the Isle of Wight. Profusely and of large size on sandy banks towards the Culver Cliff, eighteen inches or more in length. About Fareham, Mr. W. L. Notcutt.

*Hippocrepis comosa*. On dry chalky banks, pastures and downs, very abundantly in many parts of the Isle of Wight. At Ventnor and Bonchurch the close, green sward is radiant with its golden coronets,



blended with the daisy, the bird's-foot trefoil and cowslip, into a natural carpet of the most resplendent colours.

*Onobrychis sativa.* On banks and chalky slopes in various parts of the county and island, though not very common or always easy to determine whether wild or not from the universality of its cultivation. I believe it, however, to be a genuine native in Hampshire and the south of England, and our chalk downs to be its rightful, undisputed home.

*Prunus spinosa.* Most universal and abundant in all parts of the Isle of Wight, and I believe of the county, in woods, thickets and bushy places. In some of our stiff clays it covers considerable tracts of ground, to the exclusion of everything else, its densely interwoven branches forming thickets which are absolutely impenetrable by man and all but the smaller quadrupeds and birds, that find a secure retreat for themselves and their young in these thorny fortresses. The fruit or sloes, called here winter keeksies, are abundantly produced on certain trees and totally fail on others, probably from some defect in the reproductive organs: a large majority of the plants are in this barren condition. In this part of England *P. spinosa* appears under some very puzzling aspects, and is linked to the two following by such imperceptible and evanescent degrees of affinity as to defy any specific formula that can be formed to distinguish them, unless in their extremest states of divergence, and not always even then.

—— *insititia.* Woods, hedges and thickets in all parts of the Isle of Wight, very common, but less abundant than the foregoing. A larger, taller and stouter shrub than the last, with a yellowish (often yellowish green or olive) coloured bark, and much larger flowers, that appear with the leaves. Fruit globose, dark blue, as large as a marble, not altogether uneatable when fully ripe, and excellent for tarts and puddings, for which they are collected by the country people. I once brought home a quart or more of these wild bullaces, and had them made into a tart, which was one of the best flavoured and most juicy I ever partook of. Yet plants occur continually in our hedges so exactly intermediate between the bullace and the austere, uneatable sloe, that I am compelled to regard them both as forms of one species, and believe that the solution of the problem is to be sought for in the well-known fact that many plants evince a strong tendency to sport in varieties as the species advance southward, which in more northern latitudes continue true to their primitive or normal type. In other words, that climate spontaneously works that amelioration in vegetables easily susceptible of improvement, which

cultivation artificially effects in the same and others to a more exalted degree of perfection.

†? *Prunus domesticus*. By this name I designate (whether right or wrong I know not) a still larger form of our wild plums which occurs here and there in the Isle of Wight, chiefly in hedge-rows in the enclosed country, and hence perhaps less truly spontaneous than the two preceding. In this the leaves are large, obovate, the peduncles mostly solitary and the fruit still larger than in *P. insititia*, yet certainly not with us at all oblong, but perfectly globose.

‡—— *Padus*. Very rare, and I have no doubt naturalized. In a thicket near St. John's, Ryde, but sparingly, and certainly, I think, introduced. Under the rocks, below Cook's Castle, between Shanklin and Appuldurcombe in some plenty, but scarcely indigenous. I have not heard of its occurrence elsewhere in the island or county, though as it is found wild in some parts of Kent, it may be eventually discovered with us in the same condition.

—— *Avium*. Common everywhere, and in some parts of the Isle of Wight abundant in woods and copses, attaining, occasionally, to a large size and height, and making a fine appearance in our woods when in blossom in April and May. In general the fruit with us is small, red, bitter and uneatable (red cherry), but in the sandy soil at Bordwood, Isle of Wight, and about Southampton, are trees which produce black, sweet and excellently flavoured fruit (black cherry, black heart), which is sold in the market. The two varieties are perfectly distinguishable by their flowers and foliage. I am sorry to see this truly distinct and well-marked species degraded from its rank in the 'London Catalogue of British Plants,' and absolutely astonished to find it therein set down as a variety of *P. Cerasus*! Had the case been reversed, my surprise would have been less, but to find the greater and more widely diffused of our wild cherries merged into the smaller and far rarer, does, I confess, puzzle me exceedingly to account for.

—— *Cerasus*. In hedges, thickets, the sunny borders of woods and glades, and on steep banks, not common, though abundant in several spots in the Isle of Wight, and apparently quite indigenous. It is particularly fond of growing on slopes, which it sometimes covers with a thicket of bushes eight, ten, or twelve feet in height. Such a thicket may be seen on a hill-side, surrounded by cornfields, about half a mile west of Niton church, and along the crests of high, chalky or sandy banks in various parts of the island. The fruit,

which is red and acid, is but sparingly perfected in the wild state. A truly distinct and unmistakeable species.

*Spiræa Filipendula*. Not rare, I have reason to believe, in mainland, Hants. On Longwood Warren, near Winton. Barton Ashes, Droxford, Dr. Pulteney, in Hamp. Rep. Freefolk, Rev. G. F. Dawson! Near Andover, Mr. Wm. Whale. Plentiful on downs between Crawley and Barton Stacey, Dr. A. D. White. Extremely rare in the Isle of Wight. On the downs above Steeplehill, Dr. Martin. I have looked there for it in vain. In the great plantation on the down behind Westover in one or two spots, but not abundantly.

*Geum rivale*. Low, wet meadows and moist woods, apparently frequent and widely dispersed over the mainland part of the county, but totally failing in the Isle of Wight, though abounding, as it does, with situations perfectly analogous to its usual places of growth. Moist meadows by Netley Abbey and at Mansbridge, near Southampton. Andover, Mr. Borrer, in Bot. Guide, and Mr. Wm. Whale. Shawford, Miss G. E. Kilderbee. Banks of streams, Breamore, near Fordingbridge, Miss May. Stoke Common, Mr. Forder! Very abundantly at Bishopstoke, in a water meadow close to the road between the railway station and Fair Oak, Miss L. S. Minchin. Common in water meadows about Winton, Dr. A. D. White!!! Plentiful in a meadow near Bishop's Waltham, in which *Fritillaria Meleagris* grows, directly opposite Mr. Jonas's mill.

*Poterium Sanguisorba*. In dry, chalky pastures and on downs most abundantly over the Isle of Wight, and I believe equally plentiful in similar soil and situations throughout the county.

N. B. — *Sanguisorba officinalis* has been reported to me as growing in two places within the county, but I have seen no specimens from either station. In one of these I have every reason to believe that the *Poterium* was mistaken or intended for it, whilst considerable doubt and hesitation exist in the mind of my informant as to the correctness of his observations in the other locality.

Of the genus *Potentilla* the county and island possess in abundance all the lowland and south-country species, excepting *P. argentea* and the submontane *P. verna*. The first may reasonably be looked for in sandy or gravelly soils; the second with less probability of success on the downs in the northern part of Hampshire. *Alchemilla vulgaris* is another desideratum for our county flora.

*Comarum palustre*. In spongy, peaty bogs and drains, frequent in the Isle of Wight and county generally.

*Fragaria vesca.* Woods, thickets and on hedge-banks very common everywhere.

†?—— *elatio*? I observed some years ago a *Fragaria* which is probably this species, growing very abundantly in Stratton Park, along the carriage-drive to the house, but had at the time no opportunity of examining it more closely. I mention it here to call attention to the plant and its locality, which latter, from what I recollect of it, was not such as would entitle the former to be pronounced indigenous, though perhaps few English stations for the hautboy strawberry are much less exceptionable.

For the subjoined list of Hampshire brambles I am indebted to the kindness of my friend Dr. T. Bell Salter, who it is well known has devoted much attention to this most difficult and perplexing tribe.

I freely confess that the uncertainty which hangs over the determination of the species, and the endless diversity of opinion which prevails as to their number, names and characters, quite dishearten me from attempting their investigation; the more so, as I feel persuaded that to enter on their examination with any chance of ultimate success, would require a much greater sacrifice of time to be exclusively given up to the task, than I am either able or willing to devote to the attainment of an end, the successful issue of which, after all labour bestowed, is very problematical. Seeing that some of our most acute botanists, after years of close and careful study of the brambles, still doubt, hesitate and dispute about them, I am sensible how ineffectual would be any endeavours of mine to aid in the adjustment of so vexed and complicated a question.

*Rubus Idæus.* In thickets and moist woods not very frequently or abundantly, but pretty generally spread over the Isle of Wight. I have not observed it on the mainland, but have no doubt of its being about equally frequent. The variety *trifolius*, and that with white fruit, less common. Westwood, near West Meon, Miss L. Sibley!!! Near Clanfield, W. A. B. Abundant on Oxenbourne Down, near Petersfield, springing up where the furze has been burnt, and elsewhere in that vicinity, W. A. B.

—— *suberectus.* Observed only in damp woods in the Isle of Wight, near Shanklin, and generally of the form *trifolius*. It sometimes attains the height of eight or nine feet, with fruit of a bright red. Leighton's *fissus* certainly does not differ from this.

—— *plicatus.* In bogs and damp woods in several parts of the Isle of Wight and the mainland.

—— *Salteri.* The only Hampshire station I yet know for this

plant is the original one in Apse Castle Wood, but I have seen specimens from other counties. The plant maintains its characters when removed into gardens.

*Rubus tenuis*. Not frequent. At Selbourne and in the Isle of Wight, near Swainston.

—— *leucostachys*. This species, with some others not till lately well distinguished, is too common for recording its several habitats. I mention it, however, in order to refer to the variety *vestitus*, likewise of frequent occurrence in almost every wood, alike on the mainland and in the island. In the neighbourhood in which *leucostachys* grows, *vestitus* is found in the interior, whilst at the margin of the woods every gradation may be seen betwixt them.

—— *sylvaticus*. In hedges, not common, in the New Forest and Isle of Wight.

—— *Borreri*. On sandy heaths in the Isle of Wight, very rare.

—— *carpinifolius*. In hedges on a sandy soil. On the mainland, near Selbourne, &c. In the Isle of Wight it abounds in the green-sand district of the south-east of the island. In woods it assumes the form of var. *roseus*.

—— *macrophyllus*. In moist, not boggy woods, probably generally diffused. I have noticed it near Selbourne, and in several parts of the island.

—— *Babingtonii*. Rare. In a hedge-row near Selbourne.

—— *rudis*. In hedges frequently. About Alton and Gosport, and in the Isle of Wight. The form? *Reichenbachii* rare at Selbourne and near Ryde.

—— *Radula*. Of unfrequent occurrence. The typical form and the variety *Lingua* on the heaths about Bourne Mouth, and the variety *Hystrix* in woods in the Isle of Wight, and probably in those of the mainland also.

—— *glandulosus*. Rare, in damp hedges. I believe Bellardi's form has not been found in the south of England. The more frequent in this county is the variety *Lejeunii*, but this is very local, having been observed in several sites around Selbourne, and one or two in the island. The variety *rosaceus* I have only seen in Selbourne Lith.

—— *Wahlbergii*. In hedges very local, chiefly in the N. E. of the Isle of Wight.

—— *nemorosus*. In hedges. A rare plant in Hampshire. It grows in one small district of the Isle of Wight. This species and the former are very apt to lose their fruit immediately after flowering.

*Rubus cæsius*. By no means a common plant in Hampshire. Very local in the island, the var. *pseudo-cæsius* being here the commonest form. In Swainston Park the ground is in some parts covered with a mat of dewberries, W. A. B.

*Rosa spinosissima*. Abundant in various parts of the county and Isle of Wight, on heaths and on sandy sea-shores, pastures and hedge-banks. About Boldre and elsewhere in the New Forest, &c.

— *tomentosa*. Frequent in the county and island, in woods and hedges.

— *micrantha*. In various parts of the Isle of Wight, by no means uncommon, and probably on the mainland, but I know nothing of its distribution in the east division of the county.

— *rubiginosa*. Far less frequent with us than the last, and indeed apparently quite rare, at least in the Isle of Wight. Near Yarmouth and Calbourne, but sparingly in both places, though truly wild.

— *canina*. Abundant everywhere in some one or other of its multitudinous forms. The var. *β. sarmentacea* is one of the most common of these in the island.

— *arvensis*. Very plentiful in a variety of places in the Isle of Wight, chiefly in woods and thickets on the clay. On the mainland I believe it to be also generally distributed.

*Cratægus Oxyacantha*. Profusely everywhere in woods, hedges, and thickets throughout the entire county and island, often reaching, as in the New Forest, to a great size and height. The variety with one of the styles alone developed, *C. monogyna*, *Jacq.*, is by far the commoner form with us, if not the only one. Another variety, with larger, more oblong fruit, and a third with woolly fruit and peduncles, occur in this island; the latter, which is not uncommon, and I suppose is the *C. eriocarpa*, *Lindl.*, was first pointed out to me by my friend Mr. W. W. Saunders. The fruit of the hawthorn is called hoghails or haghails in this island.

†? *Pyrus communis*. Occasionally in woods and thickets as a very spiny torulose shrub or small tree, but not at all common, and mostly sporadic, seldom perfecting fruit. More frequently it occurs in hedge-rows, but in other places it has a perfectly wild appearance; yet from the paucity and sterility of the individuals, I am inclined to think the specimens found in our woods may owe their origin to the seeds of the cultivated pear dropped by birds.

— *Malus*. In woods, copses, thickets, and hedges throughout the county and island, truly and abundantly indigenous.

— *Aucuparia*. In (mostly) hilly or rocky, but sometimes in

flat woods and copses; rare. In several parts of the Isle of Wight, but so sparingly in the different stations, that I was long disposed to regard it as merely naturalized, till I found it to be quite frequent in the woods near Bishop's Waltham, Wickham, Fareham and Botley. In our Hampshire woods it is never to be seen otherwise than as a small tree of very slender proportions, but flowering and fruiting at an early age, preferring damp, cool situations by streams.

*Pyrus Aria.* Extremely abundant in woods and copses, associated with the beech in most parts of the mainland of Hants, where that tree abounds, often constituting a large proportion of the brush or underwood on the sloping-faces of the chalk-banks and hills. Profusely about Petersfield, on Butser Hill, Clanfield, Bishop's Waltham. Not rare in the Isle of Wight, in some woods of which it abounds, but rather locally. There is a fine old tree of it in Youngwood's Copse, near Newchurch, which I measured, in February, 1846, and found to be 3 ft. 8½ inches in girth at 3½ ft. from the ground, though not above 16 or 17 feet in height, with a rounded, spreading head, dividing at 36 inches from the earth into several stout arms; the large reddish or orange-coloured fruit not unpalatable. Called white rice or white leaf, sometimes whip crop (from its use in making whip-handles) in the Isle of Wight and county generally.

—— *terminalis.* In woods, copses, and hedges in the lower flat country on the eocene or freshwater formation; not, so far as I have observed, on the chalk, greensand, or any rock accompanying the latter. Plentiful in many parts of the Isle of Wight, north of the great central chalk range, as all along the shore westward from Ryde and along the Wootton River, also in various places along the coast of West Medina, between Cowes and Yarmouth. In woods near Fernhill it forms a large portion of the rice or copse wood, and being cut as such is seldom seen but as a shrub, whilst in other parts of the island it has been permitted to reach its natural dimensions. A tree in Quarr Copse, at Binstead, the largest I know of in the county, I found to measure, a few years ago, 5 ft. 6 inches in girth at 3 feet from the ground; the height of its fine round-topped and spreading head may be about 30 or 35 feet. The species is here called service-tree, and the brown dotted fruit, which ripens in October and November, is sold in Ryde, tied up in small bunches, to children; the flavour being much like that of medlars, and very agreeably acid. In Sussex the berries are called checquers. On the mainland I have observed it about Lymington, but not as yet in the interior of Hampshire. The tree is well worthy of general cultivation, both for its

fruit and the beautiful dark green glossy aspect of its large and singularly shaped leaves, that remind one of those of certain American oaks, particularly the trilobate variety of *Quercus falcata*, and, like them, fade to a rich purple in autumn. From similarity of name the true service-tree (*P. domestica*) has most erroneously been given as a native of the Isle of Wight in the 'Botanist's Guide,' and the mistake copied into subsequent publications.

W. A. BROMFIELD.

[To be continued].

The following species and varieties were inadvertently omitted from the former part of this catalogue, from the haste with which it was prepared for the press:—

*Ranunculus hederaceus*. Pools, ditches, and drains in the Isle of Wight, not at all unfrequent, but much less common than *R. aquatilis*.

———— *circinatus*. Marsh ditches in Brading Harbour, Isle of Wight.

———— *fluitans*? A plant which I considered as the var. *pantothrix* of *R. aquatilis*, and which I presume to be the above, now considered (and perhaps justly) as a species, grows in several pools in this island, but must receive farther attention before I can confidently assert its identity with the *R. fluitans* of authors.

———— *auricomus*. Not a common Hampshire species, though abundant enough in certain places. Plentiful in several parts of the Isle of Wight, but restricted to the clay of the eocene deposit. I have never remarked it on the chalk or greensand.

*Aquilegia vulgaris*, add, In quantity in the wood facing the church at Appleshaw, Mr. Wm. Whale!!!

*Papaver Rhœas*. A specimen of a beautiful variety with the flower pure white, I picked this summer in a wheat-field above Sandown Bay.

———— *hybridum*, add, Andover, Mr. Wm. Whale!! Most likely not rare in the county, but apt to be overlooked, as the flowers expand only in the early part of the day and fall before noon.

———— *Argemone*. I find a variety of this, which abounds on the green sandstone in fields about Shanklin and Sandown, with petals deeply and prettily fringed or laciniate.

*Fumaria Vaillantii*. Andover, Mr. Wm. Whale!! Babington says this is common, but I have not met with it here, nor does Mr. Borrer find it in Sussex.

† *Alyssum calycinum*, add, A few specimens picked in a clover-



field by the new parsonage house at Sandown, Isle of Wight, by Miss Lovell, 1848, doubtless introduced, but may likely become naturalized hereafter!

*Nasturtium terrestre*. Wet places in the Isle of Wight, rare. In several parts of Sandown Level. Pond at Hardingshoot Farm, abundant.

*Silene maritima*, add, Abundant on the sea-shore about Lymington, and on Hayling island.

—— *nutans*, add, Abundant, if I recollect rightly, on the flat shore of Stokes Bay.

*Spergula arvensis*. Profusely in cultivated fields. I have remarked this plant to possess a most repulsive stercoreaceous odour, not commonly if at all noticed in books.

*Stellaria media*, var. *apetala*. On the sandy flat below St. Helen's, Isle of Wight.

W. A. BROMFIELD.

Eastmount House, Ryde,  
Isle of Wight, August 1, 1848.

*Notice of Juncus diffusus in Leicestershire.*

By the Rev. ANDREW BLOXAM, M.A.

To the Rev. W. H. Coleman is due the credit of the discovery of the above-named species in Leicestershire.

He finds it in several localities in the neighbourhood of Ashby-de-la-Zouch, and it having been pointed out to me by him in one of these, I have been enabled to recognize it in my own immediate neighbourhood, where it has been verified by him since. I find it in small quantities growing amongst *Juncus glaucus*, in the road between Twycross and Snarestone, by the side of Gopsal Wood, commencing about a quarter of a mile out of Twycross. It is also found in great abundance in a field adjoining the Ashby canal, at the back of Congerstone, a village about two miles distant from Twycross. It may probably be more universally diffused, but hitherto generally overlooked by botanists, as was the case with myself, from its presenting, at first sight, so few prominent marks of distinction from other species.

ANDREW BLOXAM.

August 9, 1848.

*Notes on the Periods of Flowering of Wild Plants.*

By GEORGE LAWSON, Esq.

THIS is an interesting subject, brought before the attention of your readers by Mr. Lees and Mr. Snooke in your last number, and one to which additional attention ought undoubtedly to be directed; but I fear much that we must wait a little for the lulling of the *species mania* before the subject receives that attention from the authors of Floras which its importance demands. The knowledge and discrimination of species is a most important matter, but it should not be looked to as the grand *end* of Botany, and when it excludes the investigation of equally important departments of the science, it then assumes a false importance to which it is not entitled.

The periods of the flowering of plants in different parts of Britain must from obvious causes be very various; but were attention to be directed to the subject by botanists throughout various parts of the country, the accumulation of facts thus collected would no doubt modify very considerably the flowering-periods stated in the different Floras, at least in many places.

I have been in the habit for a few years past of observing the dates of the appearance of various flowers, more particularly in the early part of the season, and the following notes are the results of a number of my lists for different years being put together, and the average dates struck.

*February 20.* Petasites vulgaris first in flower.

*March 9.* Draba verna in flower. In 1848 it was so late as the 25th of March before I observed the Draba, but from its appearance it had evidently been in flower long before that date.

*March 14.* Petasites vulgaris in full flower.

*March 15.* Ranunculus Ficaria, Chrysosplenium oppositifolium and Mercurialis perennis in fl. The Ficaria and Chrysosplenium occasionally begin to produce stray flowers very early in mild winters.

*March 20.* Primula vulgaris in fl.\* Viola odorata and Veronica hederifolia in fl.

*March 24.* Tussilago Farfara in fl.

*March 30.* Viola hirta in fl.

\* I may remark that we have not primroses flowering promiscuously throughout the winter in Scotland, as seems to be the case in England. An exception to this rule may, however, be noted in the case of plants on the coast banks exposed to the maritime breeze, which occasionally produce an early flower.

*April 1.* Tussilago Farfara in full fl. Primula veris in fl.

*April 20.* Saxifraga granulata in fl.

*May 1.* Potentilla Fragariastrum, Oxalis Acetosella and Glechoma hederacea about full fl.

*May 2.* Prunus spinosa, Veronica chamædrys and Fragaria vesca in fl.

*May 3.* Potentilla verna\* and Geum urbanum in fl.

*May 4.* Primula veris and Viola hirta in full fl.

*May 6.* Doronicum Pardalianches in fl. Caltha palustris in full fl.

*May 9.* Geum rivale and Galium cruciatum in fl.

*May 14.* Anthoxanthum odoratum in fl.

*May 15.* Luzula sylvatica in fl.

*May 21.* Viola lutea in fl. (Perhaps it should be earlier).

Rosa canina generally appears in flower about the second week of June or earlier. It was the 17th of June before I observed it *this* season, but it had probably been in flower a week before that time.

I will not proceed further with my notes, as by the end of May my journal generally declines much every year, partly from the circumstance of the busy collecting season then beginning, and partly from the *first appearance* of many plants not being so easily noticed in consequence of the luxuriance of surrounding vegetation. In the above notes it will be understood that the *first flowering* is meant in all cases where the fact is not stated to be otherwise.

GEORGE LAWSON.

Dundee, August 12, 1848.

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### *On the Occurrence of Tulipa sylvestris in Fifeshire.*

By GEORGE LAWSON, Esq.

I BEG to record the occurrence of Tulipa sylvestris in several large patches under trees near to the ruins of Pitcullo Castle in the county of Fife, where I first observed it in the spring of 1847. It does not seem to produce flowers at that place (as I believe is often the case with this plant in other situations), and at the time I first found it I was not altogether certain that it really was the Tulipa, being told by a person living near the place that the plant "produced blue flowers

\* Probably the Potentilla verna generally flowers earlier in this district than the date under which I have given it, but I possess no evidence to show that fact.

late in the season," and therefore I did not include it in my list of Fifteen plants published in a late number of the 'Phytologist.' I have since, however, satisfied myself as to the plant.

The proximity of this station to the castle-ruins renders it very doubtful whether the plant may be indigenous, but it is thoroughly naturalized at any rate, and therefore demands our attention.

GEORGE LAWSON.

Dundee, August 12, 1848.

*Note on the Variety of Primula noticed at page 128.*

By GEORGE LAWSON, Esq.

THE variety of *Primula vulgaris* mentioned by Mr. Collins at p. 128 of the present volume of the 'Phytologist,' is by no means rare in the cottage gardens of this district, being much cultivated in the flower-border as a curiosity.

GEORGE LAWSON.

Dundee, August 12, 1848.

*Remarks on the Naturalization of Plants in Britain.*

By GEORGE LAWSON, Esq.

THERE was a time when the soil of Britain was not touched by spade or plough, and when its flora was in a state of natural purity, unaffected and unchanged by the commerce or operations of mankind. When cultivation began, however, and was gradually extended, and the nature of the soil changed, then in like proportion would the character of the flora change. Many of the aboriginal inhabitants of our primeval forests would decrease in numbers, and some of the rarer species that were confined to a small area might be exterminated altogether. In the place of these, other plants to which the changed conditions of the soil were suitable, would spring up from the seeds carried there by mankind and other causes; and thus would take place a change in our country's flora, of a real, and not of an artificial kind. Perhaps there are not many (if there indeed be any) of the common annuals of cultivated grounds but have had their origin as British plants in this manner.

Of late years various plants of exotic origin have been reported as

accessions to our British flora, some of these of the class of annuals before referred to, which would be ready again to quit the flora in the event of a cessation of cultivation, and others of a more permanent caste, which have likewise been introduced by the agency of mankind, but which have established themselves amongst the real indigenous vegetation of the land, and, as has been remarked, now bid defiance to all efforts at extermination. The plants of the two classes I refer to are alike dealt little with by botanists; and whenever any person reports the occurrence of such a plant in any part of this country, he is sure to be denounced as one desiring to attach too much importance to his observations, and it is of no avail in warding off such a denouncement, that the observer has the candour to express his conviction that the plant has been introduced in the manner referred to. This should not be the case; and it *would* not be the case were botanists to give that attention which is due to naturalized species; but it is the present fashion for botanists capriciously to discard all species that cannot be proven to be really *indigenous* to the country. If we do not begin to care something for *naturalized* species, we shall by and by only have to study the flora of Britain *as it once existed*, which has vanished away like the baseless fabric of a vision, leaving but a wreck behind, which owes its rescue to the stone tablets of Geology.

Although general in my condemnation of the way in which naturalized aliens are treated, I am aware that there *are* botanists who do attach importance to these interesting plants, and I am very glad to see that Mr. Watson introduces these plants into his important work the 'Cybele Britannica,' although I could have wished that they should have had importance with him sufficient to induce his recording the geographical distribution (in this country) of such as are thoroughly naturalized.

My remarks on the present occasion have been drawn forth by a paper, published in your August number, by Mr. Woodward (Phytol. iii. 201), purporting to interpret the terms *native*, *naturalized*, and *imperfectly naturalized*, the publication of which seems only calculated to mystify and confuse what was clear enough before.

Passing over the most considerable portion of Mr. Woodward's paper, we come to the remark:—"Buckwheat, maize, hemp, and *Solanum tuberosum* would be a grand addition to the British Flora, quite on a par with the *Eschscholtzia*, *Impatiens*, *Mimuli*, and *Martagon* lilies, which are registered as growing for a season on some lonely rubbish-heap." Now, Mr. Woodward's paper is in many

parts so vague, and so much beyond my limited comprehension, that I find it necessary to appeal to the judgment of the candid reader whether I interpret rightly the meaning of the above quotation. I understand, then, Mr. Woodward to mean, amongst other things, that it is a great error to *suppose* the *Impatiens* and *Mimulus* to be naturalized plants, seeing that the four exotics he first enumerates are "on a par" with them, and farther, that he means to say that the *Impatiens* and *Mimulus* have (in common with others) been *only* found "growing for a season on some lonely rubbish-heap."

On reference to several works I find that the *Impatiens Noli-metangere* grew wild in Britain in Ray's time. Ray died in 1705, or within a year of that time, if I recollect rightly, so that the plant must have been known as a wild plant for at least 140 years, which is no mean claim to entitle it to rank as a naturalized plant, and it was really too bad of Mr. Woodward to stigmatize it as "growing for a season on some lonely rubbish-heap."

With regard to the *Mimulus luteus*, allow me to cite the following localities where the plant has been found more or less abundantly in a naturalized state in this country.

Ditch-bank below Dudhope Barracks, Dundee. 1815.\* The station has been subsequently destroyed by the erection of buildings on the ground the plant occupied. George Palmer.\*

Side of Invergowrie burn. 1824, or earlier.† W. Jackson, Sen. (Phytol. ii. 421).

Boggy margin of a mountain rill, not more than a mile or two from Abergavenny. 1824. Rev. W. T. Bree (Phytol. ii. 420).

Near Dun Mill, situated near Brechin road. 1843. A. Kerr (Phytol. iii. 224).

Near Largs. 1845. Professor Balfour (Phytol. ii. 320).

Banks of the Forth, rather less than a quarter of a mile above the bridge at Stirling. 1845. F. Townsend (Phytol. ii. 421).

Margin of the Dighty, at Strathmartin, Forfarshire. 1845. G. Lawson (Phytol. ii. 389).

Banks of the Tay, a little below the ruins of Kinclaven Castle, at the junction of the Tay and Islay. 1845. W. Jackson, Jun. (Phytol. ii. 421).

Plentiful at a burn side, about a hundred yards S.W. from Castle

\* The years noted are those in which the stations were *first* discovered: the names are those of the original discoverers, so far as known.

† Mr. Palmer says probably 1813, 14 or 15.

Huntly garden, Perthshire; likewise at two ditches about a mile S.E. from that place. 1846. James Chalmers.

River side near Perth. 1847. John Sime.

Muir below the bridge of Dun, near Brechin. 1848. W. Anderson (Phytol. iii. 224).

Ditch near Brechin Castle, Forfarshire. 1848. W. Anderson and G. Lawson.

Ceres, Fifeshire. 1848. John Sime.

Rather abundant on the banks of the Esk, near Kinnaird. John Laing (Forfarshire Flora, 141).

Fifeshire. Rev. John Anderson, D.D.

A glance at the above will satisfactorily show that the *Mimulus* is not indeed confined to 'a solitary rubbish-heap,' but that it has very strong claims to be classed as a naturalized species in this country, and I am very desirous to see it, and many other plants equally well naturalized, regularly received as such in our Floras. At any rate I may be allowed to express a hope that Mr. Woodward will keep the above facts in view when he may again have occasion to write about *Mimuli*.

I may be allowed to make a remark or two upon the Invergowrie station, noted above, for the *Mimulus*. I visited that station in June last, and found the plant fully as luxuriant and in as great abundance as in former years.\* The author of the 'Forfarshire Flora' states (p. 140) that he found the plant at this station in 1830; that it was in cultivation at the garden of Gray twenty years before [the date of the Flora], say in 1827: hence he concludes that the plant is an escape from that garden. But the plant was recorded in the 'Phytologist' two years and a half ago as having existed "more than twenty-two years before" that time, so that it could not be an escape from the garden referred to. In showing, however, that the *Mimulus* is not there a garden escape, I am not actuated by any desire to make out a case for its nativity; and it gives me pleasure at the same time to be able to make the readers of the 'Phytologist' aware of its real origin at Invergowrie. For this information I am indebted to my esteemed friend Mr. George Palmer, a most genuine admirer and student of Nature, who tells me that the *Mimulus* was introduced at Invergowrie, and likewise at the Dudhope station, in some one or other of the years 1813, 14 or 15, by a Mr. Lennox (now deceased) who was an

\* I shall be glad to supply specimens, showing the luxuriance of the plant, to any of your readers who may feel interested and desire them.

ardent admirer and cultivator of flowers in Dundee. After its introduction by Mr. Lennox, it extended itself considerably and became firmly established, although it has since been destroyed at one of the stations, viz., the Dudhope station, as before mentioned, in consequence of improvements. Although the origin of the Invergowrie *Mimulus* is thus clearly shown, and every doubt set aside as to its mode of introduction, by which it is seen that it owes its original existence entirely to mankind, yet I am not the more prepared on that account to consent to its being discarded from our list of introduced species; for it does not now by any means depend upon mankind in the least degree for the maintaining its existence, being quite *naturalized*, even in defiance of the ambiguous Woodwardian definition of the term.

Regarding *Eschscholtzia crocea*, if Mr. Woodward means, in the sentence I have quoted, to insinuate that I endeavoured to get that plant pushed into notice *as a native*, I would beg to direct his attention to p. 136 of the present volume of the 'Phytologist,' where I remark in regard to it and the *Eutoca*, in the very same paragraph as I mention their occurrence, "These have undoubtedly no claims to be considered as natives." Perhaps, however, some one else (at whom Mr. Woodward's significant hint may be levelled) has taken the *Eschscholtzia* by the hand, that I am not aware of.

As I am at present writing on the subject of naturalization, I may mention the fact that there is every probability of the *Carduus Marianus* disappearing from the Monifieth station, near this place, where it has only been naturalized, although I believe it is considered as indigenous enough by some local botanists. I visited the place about a fortnight ago, and found that it had totally disappeared from the pasture-ground where it used to grow most abundantly, and is now limited to two very stunted and unhealthy plants, which are confined to the foot of the fence on the north side of the road, and opposite from the old station. Its disappearance is no doubt mainly caused by the turf becoming too firm to allow of its growth, it being a plant that loves loose soil.

I likewise visited the Perthshire station for the rare and interesting *Reseda lutea* in June last, which is, I believe, allowed by botanists to be an indigenous plant. It was kindly pointed out to me by my friend Mr. David Gorrie, and I observed that the rocks where it grows are beginning to be covered by vegetation of a more permanent character, which will no doubt gradually displace the *Reseda* until it is completely exterminated, unless some rural operations



again uncover a portion of the rocks, and form a proper place for its growth. The whole of the Reseda is already collected into a little corner, although I believe it used to be scattered over the rocks, probably most so when they had been but recently left by the quarryman's hammer. Here is a change taking place the reverse of that mentioned in my preliminary remarks.

GEORGE LAWSON.

Dundee, August 12, 1848.

[I confess myself fully as much mystified as Mr. Lawson by Mr. Woodward's paper, but I believe Mr. Woodward has been residing for many years in a remote part of the country, probably without the leisure or inclination to keep up his botanical reading. In connexion with the brief passage Mr. Lawson has cited, I beg to call Mr. Woodward's attention to the following records:—

"*Impatiens fulva*. At whatever period introduced, this plant is now so thoroughly naturalized, that it would be pedantry any longer to refuse it that place in the English Flora, which has been accorded on less strong grounds to many plants originally introduced from abroad. For many miles by the side of the Wey, both above and below Guildford, it is as abundant as the commonest river-side plants, the *Lythrum Salicaria* or *Epilobium hirsutum*; and my friend Mr. Henry Cole informs me that it is found in various places by the same river all the way to its junction with the Thames. It is equally abundant on the banks of the Tillingbourne, that beautiful tributary of the Wey; especially at Chilworth, where it grows in boundless profusion: and near Albury, where I saw it for the first time in 1822."—*J. S. Mill*, *Phytol.* i. 40.

"*Lilium Martagon*. This plant occurs in tolerable plenty near the village of Sampford, in this county [Essex], on the road from Great Bardfield to Walden. This locality was pointed out to me last May, by my relative Mr. R. M. Smith, of Great Bardfield, who has known of it for above twenty years. The spot is a high bank, sprinkled with low bushes, on the side of a lane leading from the village eastward to some unexplored part of the county. From the situation I cannot at all suppose that the plant can be an escape from any garden. When I visited the spot there were a considerable number of plants, chiefly growing on the outsides of the clumps of bushes, but sometimes quite out in the grass. I do not see any mention of this locality in Ray's list of the rare plants of Essex, in Camden's *Britannia*, edit. 1695.—*Edward Doubleday*; *Epping*, August 12, 1841, *Phytol.* i. 62.

"*Lilium Martagon*. I think I never shall forget the extreme-pleasure I experienced when, in 1826, I first saw this beautiful plant growing in a little coppice to the right of the lane leading from Mickleham to Headly, in Surrey. The coppice was overshadowed by oak trees of considerable size, and the underwood had been cut during the previous year, so that the tall racemes of the lily stood up nobly and conspicuously above the brushwood, and it would have been difficult for any passing observer not to have noticed them.—*Edward Newman*; August 13, 1841.

"[At the end of June, 1840, in a delightful excursion which we believe some of the party will not soon forget, we had the gratification of seeing *Lilium Martagon* growing in the greatest profusion in the station last mentioned. In some parts of the coppice the plants were so crowded that the flowers produced a perfect blaze of the richest colour among the young trees.—*Ed.*]" *Phytol.* i. 62.

"*Lilium Martagon*. In addition to your stations for *Lilium Martagon*, I may mention Ash, near Wrotham, Kent, where it grows plentifully in a very wild situation on an estate belonging to Mr. Gladdish.—*N. B. Ward*; *Wellclose Square*, September 1, 1841." *Phytol.* i. 76.

After careful inquiry respecting the woods or copses in which *Lilium Martagon* has been found, I have ascertained that no record exists in either instance of the planting of such woods or copses: it may therefore be supposed that *these* are of considerable antiquity, and as the roots of the lily are so deep in the earth, and so protected by a net-work of the tough roots of oak, hazel, maple, &c., as almost to preclude the possibility of getting them out entire, it may be fairly assumed that *they* also are denizens of some antiquity. It is in direct opposition to well-established facts to treat such plants as the temporary occupants of "some lonely rubbish heap;" such is not the locality in which they are recorded as occurring.—*Edward Newman*].

*On the Occurrence of Botrychium Lunaria in New Localities.*

By the Rev. W. T. BREE, M.A.

MR. BLOXAM records the fact (*Phytol.* iii. 183) of his having found *Botrychium Lunaria* this summer for the first time near his residence in Leicestershire. Now I can fancy that my friend, pleased, as no doubt he must have been, at the discovery of a new locality for so in-

interesting a species, might yet be a little out of conceit with his own well-known botanical sharp-sightedness for having, as he supposes, *overlooked* for ten years a plant which all the time had been growing close under his nose. If so, it may be some consolation to him to learn that other botanists also are sometimes liable to commit similar, and indeed much greater oversights. I will tell him what happened to myself. My first acquaintance with that prince of British Ranunculi, *R. Lingua*, in a perfectly wild state, was on the occasion of a visit to the fens at Whittlesea Mere. There the plant grew in great abundance, luxuriance and beauty, rearing its ample, bright blossoms some feet above the surface of the ground or water, to the no small satisfaction of a botanist who might see it for the first time in its native state. I was not then aware that *Ranunculus Lingua* was even a Warwickshire plant; however, the very next summer I found an old, over-grown pit, in this parish (Allesley), full of the *Ranunculus*! and in this situation I have not the least doubt it had grown time out of mind; for the pit was one of those neglected spots, which, in spite of inclosures and all agricultural improvements, had retained its primitive character unchanged and unmolested by "man's meddling."

But to return now to the *Botrychium*: my friend and neighbour, the Rev. W. Thickins, informed me a few weeks ago that he had found this fern near Coleshill Pool, in the earlier part of this summer, as since recorded by him in the '*Phytologist*' (*Phytol.* iii. 222). Guided by his direction, I lately visited the spot, and accordingly found the *Botrychium* in good abundance; more so than I have ever seen it elsewhere. I might have gathered in a short time, I dare say, forty specimens, or more, within the space of less than an acre of ground. Now what may seem strange, and to do me no credit as a searcher for plants, is, that although this ground has been known to me from my earliest years, and to my father before me, we never found there *Botrychium Lunaria*; neither, I may add, did Lady Aylesford ever discover it in this locality, though she frequently botanized about Coleshill Pool, and had a most keen eye for a minute plant. Nay, more, I was over the very spot last summer (1847), in company with some botanical friends, and we did not observe the fern. True it is, we were not on the *look out* for moonwort; nor had I the least idea that it had ever been found on Coleshill Heath, till Mr. Thickins subsequently reminded me that in the second edition of Newman's *Ferns* it is stated that "Mr. Murcott has observed it on heathy ground near the upper part of Coleshill Bog." But a botanist, I admit, ought to have his eyes open at all times and in all places, for

anything and everything, if he would do his work as it should be done.

It would appear, then, that we had entirely *overlooked* this pretty little fern; the evidence, I confess, is strong against us; but yet I am not quite so sure that this has really been the case either in Mr. Bloxam's instance in Leicestershire, or my own at Coleshill Heath. Plants certainly do sometimes start up on a sudden in a new locality, and as it were spontaneously, or at least nobody knows how. I have elsewhere recorded (*Mag. Nat. Hist.* vol. ii. p. 70) the spontaneous appearance of *Epipactis latifolia* in a newly-made plantation on my premises. Instances, indeed, of this plant's spontaneous appearance in similar situations have so repeatedly come under my observation, that I almost dare venture a wager, that I will make a new plantation, and that in the course of a few years the *Epipactis* shall make its appearance there of its own accord. When I speak of the *spontaneous* appearance of a plant, I beg to be understood as not intending to express by that term anything like the unphilosophical notion of what is called "spontaneous generation" in the animal kingdom. I simply mean the appearance of a plant of its own accord in a situation where it was not used to grow, and in a way that one cannot account for :

—— "nullis hominum cogentibus, ipse  
Sponte sua veniunt."

I will mention another instance, occurring also on my own premises, and within fifty yards of this house. Some years ago I took in a small bit of ground, comprising but a few square yards, from a very old piece of turf, for the purpose of making a little thicket; this bit of ground was planted, among other things, with gorse and broom; when these shrubs were grown up, I was greatly surprised at finding among them some fine plants of *Orobanche major* (or elatior, I am not now sure which). How did the parasite come there? I do not think it likely that the seed should have been wafted to the spot by the wind; for, to the best of my knowledge, the plant does not grow in this, or any one of the adjoining parishes. The nearest place in which I have observed it is seven or eight miles distant. Some phænogamous plants then, it seems, appear from time to time spontaneously in new and unexpected localities. Cryptogamous plants, it strikes me, and especially ferns, are still more likely so to do. The seeds of ferns, as every one knows, are extremely minute, and

accordingly may readily be conveyed to a distance by the wind and by other means; and lighting on a situation suitable to their growth, in due course vegetate and spring up. It should almost seem, indeed, that the earth and the atmosphere are *charged* (so to speak) with the minute seeds of ferns, mosses and fungi, which are only waiting for favourable circumstances to call them into active life. In this manner I suppose it is that *Asplenium Ruta-muraria* and *Trichomanes* have occasionally appeared, self-invited, in the chinks of my garden-wall and down among the brick-work of the cellar-windows. Moreover, the seeds of ferns, contrary to what I should have expected, are known to retain their vegetative power for a great length of time. I have often raised ferns from seed scraped from old specimens preserved in an herbarium. Ferns therefore, above most other plants, we might expect to meet with every now and then in new localities where they had never occurred before. I will now mention an instance of what I consider the spontaneous appearance of a rare, or at least a local species of fern, which occurred to me in the adjoining parish of Berkswell. About two years ago I was greatly surprised as well as gratified at finding *Polypodium Dryopteris* in the crevices of a rough stone wall by the road-side, half a mile from that village. This wall, which was constructed of rough sandstone, without any mortar, had been built in the year 1829 (*i. e.*, about seventeen years before I observed the fern), for the purpose of making a facing to secure the perpendicular side of the bank, on the occasion of the road having been widened. As many of the more common species, such as *Lastræa Filix-mas* and *dilatata*, *Athyrium Filix-fœmina*, *Polypodium vulgare* and *Asplenium Adiantum-nigrum*, &c., grew originally on the bank before the road was widened, of course they soon established themselves on the newly-constructed wall, to which they proved a great ornament. In this situation I have often admired, and often gathered *A. Adiantum-nigrum*, which flourished there profusely, but never, till about two years ago (as already said) did I observe *P. Dryopteris* on the wall, and then but sparingly, and only in one spot. The following year, a friend to whom I had pointed out the fern, found a specimen on another part of the same wall, at the distance, perhaps, of fifteen or twenty yards. I must remark that I have not the slightest suspicion of any botanical *fraud* (as it is called) having been practised in this instance by any one who might have *planted* *P. Dryopteris* on this wall in order to surprise and deceive other botanists; this, I think, in the present case extremely improbable. However, should any reader of the 'Phytolo-

gist' be cognizant of such fraud having been perpetrated within the parish of Berkswell, I shall feel obliged by his communicating the fact through the pages of this useful magazine. But till such evidence be produced, I cannot but believe that the above is an example of what I have called the spontaneous appearance of *P. Dryopteris* in a situation where it did not grow till of late years, and at a great distance, too, from any known locality for the fern; for so far as I know, *P. Dryopteris* has never hitherto been recorded even as a Warwickshire species.

I must now return once more to *Botrychium Lunaria* on Coleshill Heath, which, it might seem, I had almost forgotten. I could not help observing that the surface of the ground on that part of the heath where the *Botrychium* grew, had been *burnt* within these few years for the purpose of clearing it of the heaths and gorse which grew there. The burning of the ling, &c., I should guess had taken place at least two, or perhaps three years before; it had not *destroyed* the heaths, gorse and other plants, for they had sprouted up again vigorously since the conflagration. Is it possible that this operation may have prepared the surface, and been the means of rousing the dormant seeds of the *Botrychium* to their full development? I ask this question for information. Strange things, as regards the vegetable kingdom, are confidently said sometimes to follow a conflagration. And a slight alteration of the surface of the ground, it is well known, will often occasion an entire change in the vegetation; \* *e. g.*, there is a broad, green lane, a little common I might almost call it, near this place, which I often cross, and which produces a remarkably fine turf of short, close grass; the turf is often plundered for garden purposes, and pared off in thin layers, leaving the soil perfectly bare in patches of some square yards in size. On these patches, I observe, there invariably comes up a dense crop, not of the grasses, &c., which had previously occupied the surface, but of *Gnaphalium uliginosum*. Again, to take another instance, which, perhaps, is more in point, and at which I have already hinted, I have somewhere read that in parts of America

\* Manures, too, are found greatly to affect the nature of the vegetation, and in a way one knows not how to account for. An intelligent friend, who resided some years in Leicestershire, himself an agriculturist, once informed me, that lime from two distinct quarries was frequently employed in the neighbourhood as manure; and that after the application of one of these limes there always came up a plentiful supply of white clover; after the other sort had been used, no white clover appeared, but constantly some other plant, which he named, the species of which I do not now remember.

where forests have been consumed by fire, and the timber totally destroyed, if the ground be afterwards left to itself, there springs up from seed a growth of forest trees of an entirely different kind from those which had preceded it, as, *e. g.*, pine after oak, or *vice versâ*, I quite forget the particulars, and that this fact is so certain, and so well known to the inhabitants, that they can calculate to a nicety what description of timber trees will spring up in this or that forest after the present growth shall have been destroyed by fire. I cannot vouch for the truth of these things, but I have seen them narrated as grave and sober statements of matters of fact.

I hope it will not be thought that I have entered into this long, and, I fear, very tedious discussion, merely in my own defence, as it were, and with a view to screen myself from any obloquy which may seem to attach to one who has *overlooked* a plant on ground over which he has repeatedly botanized. The truth is not so. In the case of *Ranunculus Lingua*, a far more conspicuous plant than the little dwarfish fern in question, and one therefore which ought still less to escape detection, I have pleaded guilty, to the fullest extent, and confessed the defectiveness of my own botanical researches. But as regards the *Botrychium* on Coleshill Heath, I must say it is strange that it never should have been found either by Mr. Thickins or by myself until this season, if it has grown there in equal abundance for many former years. Mr. Bloxam's case, too, may possibly fall nearly within the same category, though *he* may not be able to allege a conflagration in aid of his defence. Perhaps, therefore, *Botrychium Lunaria* might with no great impropriety be added to *Epipactis latifolia*, *Orobanche major* and *Polypodium Dryopteris* as examples of plants

"Sponte suâ quæ se tollunt in luminis aures."

W. T. BREE.

Allesley Rectory, August 15, 1848.

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*Occurrence of Filago apiculata near Great Braxted, Essex.*

By G. E. VARENNE, Esq.

IN a gravel-pit at Great Braxted, in this county, there are to be found specimens of *Filago apiculata*, which are now coming into full flower. The locality is not confined to the gravel-pit, the middle of

a neighbouring wheat-field, which is not remarkably light land, producing also some fine specimens.

These plants perfectly agree with the description by the Rev. G. E. Smith (*Phytol.* ii. 575), not excepting the tansy-like odour of the leaves, which is very distinct. It may not be amiss to mention that the normal form of *Filago germanica* abounds in both the above-named localities.

The lateral position of the heads of flowers described by the Rev. G. E. Smith, as a peculiar character of *Filago apiculata*, is to be met with not uncommonly in specimens of *F. germanica*, whilst the full-grown varieties of *F. apiculata* have forked branches, which bear, in an uncertain manner, one, two, or three lateral heads and a terminal one.

Whether the general appearance of *F. apiculata*, its peculiar odour, the colour of the spinous points of the involucreal scales, the number of the flowers in the heads, and the really spatulate form of the lowermost leaves, are of sufficient importance to allow it to be raised to any higher rank than that of a variety of *F. germanica*, further observation may determine, the object of the present communication being merely to record the existence of the plant in this part of England as illustrative of its geographical distribution.

E. G. VARENNE.

Kelvedon, Essex,  
August 16, 1848.

*Discrepancies between the actual Flowering Seasons of British Plants and the Months indicated by the Floral Authorities.*  
By ISAIAH W. N. KEYS, Esq.

I HAVE been pleased to find that the subject on which you inserted a few notes from my pen in the February number of the '*Phytologist*' for this year, namely, the frequently observed discrepancy between the seasons when plants blossom, and the months recorded in our floral books, has received the attention of others interested in the accuracy of botanical description. *Vide* articles by E. Lees, Esq. and C. D. Snooke, Esq., in the last number, (*Phytol.* iii. 190, 203).

The following extracts from my journal for this year, being cumulative evidence, may not be altogether uninteresting:—

*January 9.*—Noticed the leaves of young plants peeping out. Daisies were not unfrequent in the fields. In Babington's Manual



March is given as the first month of this plant's appearance. The 'British Flora' says "from early spring." Query, Did the author comprehend January in the spring months? Particularly remarked the reniform leaves of *Cochlearia danica*; also the leaves of *Geranium molle*, *columbinum* and *Robertianum*. *Cotyledon Umbilicus* was exhibiting its thick, peltate leaves on old walls, at the base of the withered, brown raceme of the parent plant.

*January 12.*—The leaves of various *Geraniums* presenting a fresh and healthful appearance in Saltram woods. Plucked a piece of *Rubia peregrina*, with large, black fruit on it. The authorities already mentioned give the flowering-season of this plant as extending from June to August. The example which in this month I found in fruit must, it may be presumed, have flowered much later. In various spots in my walk the dandelion was displaying its golden rays. Babington confines this plant within the 3rd and 10th months, limits which Hooker wisely avoids. He says nothing regarding its flowering-season. Searched in the usual place in the wood for *Galanthus nivalis*, but found none. At this circumstance I was surprised. All other plants seemed earlier than usual, but the snowdrop, the proverbial "herald of the infant year," eschewed haste. Found *Oxalis Acetosella* in leaf. It flowers, according to the lists, in May. It must have been precocious this year. Saw several fine tufts of daisies.

*March 14.*—Gathered *Helleborus foetidus*. Sir W. J. Hooker says April. Also, *Pulmonaria officinalis*. The last-mentioned author, as well as Mr. Babington, insert this plant among the "May flowers." Saw colt's-foot in abundance. No flowers, however, so that they (according to authors, who place them in March and April, before the leaves) must have come and gone out of due course. It may be stated, too, that this plant is not confined to "moist chalky and clay soils" (Bab.), or "moist and clayey soils" (Hook.): it grows freely on our dry limestone, particularly on the rejectamenta of quarries. *Ranunculus Ficaria* frequent, not plentiful. Vegetation in general not so forward (having regard to its condition in January) as I expected to see it. The last-named plant flowers in April and May, agreeably to the authorities already quoted. It has always brightened my spring walks at an earlier period. Of primroses I saw a few. "April and May" again, say the book-makers. They must be more timely astir. *Mercurialis perennis* was unfolding its blossoms. Once more "April and May" are assigned as the flowering months.

*June 25.*—Saw *Chenopodium olidum* about to expand. Babington sets down the 8th and 9th months for it, and Hooker the 8th only.

*Verbascum virgatum* in flower. Both the Manual and 'British Flora' give August for the flowering of this plant.

July 18.—*Scilla autumnalis* in flower. Hooker says "September;" Babington comes nearer, naming "August" as its flowering month.

August 12.—*Echium vulgare* still in flower, and likely to continue so for some time. The Floras restrict it to June and July.

Whilst I concur with one of your correspondents that the flowering-seasons of plants are loosely indicated in our Floras, I must to some extent plead for the authors, believing that the irregularity and variety of the climate of Great Britain beset them with difficulties. At the same time, I cannot but reiterate the conviction that the true average period might be more nearly attained than has hitherto been done. Towards this end, let observations be made by collectors in all parts of our islands, and the results made patent. We may then hope to avoid such disappointment and loss of time as were experienced by another of the writers in your last number, who walked "eleven miles and back" in vain, having been deceived by the book which he followed as his guide.

ISAIAH W. N. KEYS.

Plymouth, August 17, 1848.

[I believe the secret, after all, is, as I have already explained, that the subject has not been held by our authors of sufficient importance for personal investigation.—*Edward Newman*].

*Botanical Notes for 1848.* By G. S. GIBSON, Esq., F.L.S.

A FEW brief notices of botanical excursions, &c., during the present summer, may not be uninteresting to some of the readers of the 'Phytologist,' and although several of them proved unsuccessful, in respect of the plants specially sought for, they may not have been wholly without their use. I will begin with one to Box Hill, in search of *Teucrium Botrys*. The locality where it once grew has been kept very secret, and perhaps wisely so, but I had the opportunity of being taken to the spot by a young friend who had gathered it there himself two years ago, and who therefore well knew the situation. It is, as was described, a very stony and steep valley, facing the south, near the farther end of Box Hill, from Burford Bridge. It grew, I am informed, in tolerable plenty, over a limited space of ground, but unfortunately it is now (at least temporarily) destroyed by the land being ploughed up; it may, however, possibly reappear

in a few years, or be discovered in some similar locality; for I can scarcely doubt that it was truly wild, the place being so far from houses, and the plant being an unlikely one to have been introduced in so uncultivated and unfrequented a part. It is worthy the attention of botanists residing in or visiting that neighbourhood. We were too late in the season for most of the Orchideæ, which grow there so abundantly, and did not notice any plants of particular interest, except *Epipactis purpurata* and *Cynoglossum sylvaticum*, which grew abundantly on one part of the hill, opposite Burford Bridge. *Scrophularia aquatica* was growing on the driest sides of Box Hill, but did not vary much in character. *Dipsacus pilosus*, *Campanula Trachelium*, *Nasturtium terrestre*, *Erigeron acre*, *Bromus secalinus* and *Epilobium angustifolium*, do not appear uncommon.

My next expeditions were also unsuccessful, in search of *Liparis Læselii*, which plant is likely to be very soon exterminated in this country, by the progress of drainage. The first of them was to Bottisham Fen, where the plant was said to have been recently found, but there is so little real fenny ground remaining, that it must be nearly, if not quite extinct; and though our party, consisting of four, dispersed ourselves over the peaty moor, we were unable, after several hours' careful search, to discover any trace of it. Here grow *Viola lactea*, *Apargia hirta*, *Alisma ranunculoides*, *Ranunculus Lingua* (very rare), *Erysimum cheiranthoides*, *Myriophyllum verticillatum*, *Schœnus nigricans*, *Juncus obtusifolius*, *Bromus erectus*, *Chara hispida*, &c. In returning by Cherry Hinton we gathered *Bunium Bulbocastanum*, *Orobanchè elatior* on *Knautia arvensis*, *Linum perenne*, abundantly, &c.; near Babraham *Brachypodium pinnatum*, *Astragalus glycyphyllos* and *hypoglottis*, *Orchis pyramidalis* and *Filago Jussæi*. Further on, near Hildersham, is a rich little spot, scarcely a hundred yards in extent, on which grow *Anemone Pulsatilla*, *Potentilla argentea*, *Trifolium scabrum* and *striatum*, *Dianthus deltoides*, *Thesium linophyllum*, *Hypochœris maculata*, *Phleum Bœhmeri*, &c.; and in the corn-fields around, *Silene noctiflora*, *Fumaria Vaillantii*, *Galium tricorne*, *Bupleurum rotundifolium*, &c., are often met with, also in a neighbouring copse, *Aceras anthropora*.

The second journey was to Burwell Fen, where *Liparis* formerly grew plentifully. This fen, too, has been drained within a few years, and to such purpose, that we were informed the land which was formerly worth only five pounds per acre, would now sell for thirty. There is a fen beyond still undrained, where the plant may possibly grow, but it was too full of *Arundo Phragmites* and *Cladium Maris-*

cus, to admit of much examination. Among the plants we observed were *Lathyrus palustris*, *Sium latifolium*, *Œnanthe Lachenalii*, *Peucedanum palustre*, *Nymphæa alba*, *Ranunculus Lingua*, *Rumex palustris*, *Sparganium simplex* and *natans*, *Potamogeton pectinatum* and *rufescens*, and a *Nitella*, which appears to be *N. hyalina* or *tenuissimus*. In returning to Newmarket along the Devil's Ditch for several miles, we were unable to find *Barkhausia fœtida*, which has been said to grow there, and the only uncommon plants seen, were *Thesium linophyllum*, *Cineraria campestris* and *Brachypodium pinnatum*. There does not seem any trace now of *Asperugo procumbens* in Newmarket churchyard, where it once grew, or of *Veronica spicata* on the heath. *Filago Jussiei* we noticed on the borders of some corn-fields. While speaking of this plant, I may observe that it has been found at intervals over a district of twenty miles in extent, on the borders of Essex and Cambridgeshire, and was also found near Hertford, by James Backhouse. Since sending my former notice of it, I had the pleasure of seeing *F. apiculata*, of G. E. Smith, in a new station, near Thetford, and am quite satisfied that the two plants are quite distinct, as are both of them from *F. germanica*; the broad, short leaves, the bright purple points of the calyx, the very woolly heads, and the different growth of the branches, though not the only distinctive marks, are such as attract attention at first sight, and are, I believe, permanent. Though the characters of distinct species should be such as to admit of description on paper, yet it is not always easy to do so, even when a merely casual observer might be able to distinguish them by their appearance alone; however, in this case, there are more points of difference than in very many species now admitted. Thetford is a first-rate locality for the botanist, the sandy soil producing so many plants rarely found in other districts, such as *Artemisia campestris*, *Silene Otites* and *conica*, *Galium anglicum*, *Veronica verna* and *triphyllus*, *Apera Spica-venti* and *interrupta*, *Medicago falcata* and *minima*, *Schleranthus perennis*, *Hypochaeris glabra*, &c.

I should feel much gratified if these few and very imperfect observations serve as a stimulus to any fellow-botanists in ascertaining localities of rare or little known species. I believe much remains to be done even in the most frequented parts of England, and that many new species, not merely *hair-split*, but *true* species, would yet be added to our Flora.

G. S. GIBSON.

Saffron Walden, August 18, 1848.

*Remarks on the Period of Duration of Reseda Luteola, &c.*

By GEORGE LAWSON, Esq.

IN February of the present year, while walking along the railway embankment at Ninewells, near Dundee, my attention was attracted by numerous plants of the *Reseda Luteola* that had flowered during the previous year, and which were sending out strong and healthy shoots, which gave promise of flowering again during the present season. One of these plants, with the previous year's flower-stem still attached, I removed to my garden, in order the better to watch its progress; and it is now, at the present time, in full flower, and a most luxuriant plant it is, with the last year's flower-stem still standing withered and bare, to show the perennial duration of the plant.

From the above facts I am not desirous of arguing that this *Reseda* should be considered as in any way having claims to be classed as a constant perennial. Even on the very same embankment where I observed the perennial plants; there were the withered remains of many that had evidently, by their single upright flower-stem, produced flowers and seeds only once, and then died. The perennial plants observed I look upon as exceptions (although indeed numerous) to the general rule,—plants whose strength had not been quite exhausted, as is generally the case, by the production of flowers and seeds during the preceding year, and had thus been enabled to preserve vitality until the return of spring. That, as a general rule, the *Reseda Luteola* grows up from the seed, produces flowers, thereafter seeds, and then dies, will I dare say be generally admitted; but another question relating to its period of duration arises, about which there may exist more difference of opinion, and more difference in the result of observation likewise. Is the plant an annual or a biennial; does it spring from the seed and perfect flowers and seeds, then die, all in *one* season, or does it require *two* seasons to complete this course? This question I feel a very considerable difficulty in answering, as my observations on “annual” and “biennial” plants have led me to the conclusion that these terms only form a distinction without a difference. Indeed, in books the distinction and the difference are both very clear; but when we go to the fields we find that annuals and biennials are so accommodating to circumstances, and that the “*period of duration*” of both is so changeable (the annual so very frequently assuming the character of the biennial, and the biennial in turn that of the annual), that we get into a maze of confusion and cannot tell which is which. Need I refer to the works of authors on the subject,

to show the difference of opinion that exists as to whether some plants should be classed as biennials or annuals? The fact is familiar to everybody.

While thus endeavouring to draw attention to this interesting subject, I do not shut my eyes to the many and high authorities we have for continuing the distinction of annuals and biennials; but at the same time I must be allowed to express my own candid conviction that the sooner the distinction is abolished the better.

GEORGE LAWSON.

Dundee, August 18, 1848.

*Monstrosity in Plantago lanceolata*, L. By W. ANDERSON, Esq.

A FEW days ago, while on a short botanical excursion near Brechin, I picked up a specimen of *Plantago lanceolata*, L., presenting the following curious monstrosities. Four scapes spring from one root, one crowned with leaves, nine in number. Another with leaves and spikes. Another with one leaf and seven spikes, four of them raised on peduncles from one to two inches high. And the fourth is in the normal state.

I have frequently seen a single scape crowned with two or more spikes, but I never saw so many on one plant.

I have forwarded these facts for insertion in the 'Phytologist,' thinking that they may be interesting to some of its readers.

W. ANDERSON.

Brechin, August 21, 1848.

BOTANICAL SOCIETY OF LONDON.

Friday, September 1, 1848.—J. E. Gray, Esq., F.R.S., President, in the chair.

The following donations were announced:—

Numbers 1, 2, and 3 of vol. 8 of the 'Journal of the Pharmaceutical Society,' presented by that Society. Number 21 of the 'Journal of the Royal Agricultural Society of England,' presented by that Society. 'Catalogue of Plants found at the Cape of Good Hope,' by Dr. Ferdinand Krauss, presented by the author. 'Outlines of Botany,' part 1, by William Mateer, M.D., presented by the author. British Plants from Mr. Barham, Dr. Mateer, Mr. Henderson, and Mr. Roby.

Miss Barnard, of Odsey, near Royston, and Mr. J. L. Lawrence, of Haverstock Hill, Hampstead, were elected members.

Mr. Hewett Watson presented some beautiful specimens of *Simethis bicolor*, from Mr. Borrer, collected at Poole Heath, Dorsetshire.

Dr. John Parkin read a paper "On the Potato Disease." The writer commenced by stating that, although it was too late to adopt the measures recommended by him in his work 'On the Prevention and Treatment of the Potato Disease,' there was yet time for the adoption of those which he had advised for arresting its progress after it had commenced either in the haulm or the root.

These measures, in addition to the employment of chalk and sulphuric acid, and the burning of stubble, which Dr. P. recommends in all cases when these agents can be easily obtained and the crop is small, consist either in cutting off the haulm, pulling up the stem, or raising the roots with a fork, according as the disease exists in the one or the other of these parts of the plant.

It was stated by Dr. P. that sometimes the disease commences in the haulm, sometimes in the root, the root proper, but more generally in the underground stem. The *modus operandi* of these measures was explained by Dr. P., and this part of the subject has been fully treated in his work. Dr. P. further advised that the tubers should be left in the ground until required for use, as no doubt, he said, could exist that exposure to the air hastened the process of decay after it had attacked the tubers. The writer concluded by stating it to be his intention to favour the Society on a future occasion with additional evidence which he had obtained, not only with respect to the efficacy of these measures, but of those also which he has recommended for the prevention of the disease, and which of course are of the most importance.—*G. E. D.*

*Some Account of the several alleged Species included under the name of Filago germanica of Linnaeus.* By HEWETT C. WATSON, Esq.

FOR some years past various botanists have entertained the idea that more than one single species are included among the plants to which the name of *Filago germanica* is currently applied. Two years ago, the Rev. G. E. Smith communicated specimens of his *Filago apiculata* to the Botanical Society of London, along with a diag-

nostic description, which was copied into the Report printed in the 'Phytologist' (ii. 575) for July, 1846. And by another Report from the same Society, printed in the 'Phytologist' (iii. 269) for the present month of September, it appears that Mr. G. S. Gibson and I have been simultaneously sending to the Botanical Society similar forms of the *F. germanica* under different names. This difference of nomenclature, together with a clerical or typographical error in the Report, leads to ambiguity and confusion. And as several botanists have lately applied to me about these plants and their names, I think it desirable to pen some explanations. Three apparent species are probably diffused through England; and it will not be too late to look for examples of them in October. Before another summer I trust that the Botanical Society of London will have rendered them sufficiently familiar to all its members who care to receive specimens.

By far the clearest account of these alleged species which I have seen, occurs in a memoir upon them by Jordan, read before the Linnean Society of Lyons in the autumn of 1846, and afterwards published with characteristic figures. The descriptions and figures of Jordan, together with specimens communicated to the Botanical Society of London by M. Sagot of Paris, afford the most ample means for identifying the three English species, real or supposed. Jordan alleges, and probably with justice, that the attempt to describe two species only, instead of three or four, has led to confusion and uncertainty; specimens of the intermediate species having been referred, now to one, now to another, of the two described; thus misapplying or crossing their proper characters. The descriptions of that author are lengthy; but the more peculiar distinctions are repeated in a condensed summary, which I copy below with some trifling omissions:—

"*Filago spatulata* (Presl) is distinguished from the three others by its leaves, which are always more or less spatulate, never widened at their base, more spreading and broader; the branches much more open; the clusters larger, more depressed, less cottony, and furnished with longer and more spreading bracts; the heads less numerous, of a more oval form, with sharper angles, and scales of larger size and more curved.

"*Filago lutescens* (Jord.) is readily recognized by its yellowish tomentum, and by the points of the scales which very frequently assume a beautiful purple colour. The form of its leaves distinguishes it perfectly both from *F. spatulata* and *F. canescens*. Indeed, they are always lanceolate above, but obtuse with a small mucro at their tip. The branches are but little spreading. The clusters hold exactly an



intermediate place between those of *F. spatulata* and *F. canescens*, by their form, as well as by the form, number and size of their heads, and by the form of the scales and length of the bracts; but they are frequently as cottony as those of *F. canescens*, and the points of the scales are straightish.

"*Filago canescens* (Jord.) has whitish tomentum, and the points of the scales pale not red. Its leaves are remarkable by their wavy margin, usually much revolute; they are oblong or lanceolate, like those of *F. lutescens*, but always acute. The branches are little spreading, repeatedly dichotomous, almost as in *F. lutescens*. The clusters are usually very round, very cottony, and furnished with short bracts; they are composed of numerous heads, straightish, with inconspicuous angles, and with nearly straight scales, very distinct from those of *F. spatulata*.

"*Filago eriocephala* (Guss.) is remarkable by the abundance of grayish cottony down, which covers all parts and assumes often a yellowish green colour at the summit of the plant. The leaves are very numerous and imbricated; their margins are less revolute and less undulating than in *F. canescens*; their form differs little from that of the leaves of *F. lutescens*. The stems differ in habit from those of these two species, slightly ascending from their base, only once or rarely twice dichotomous at the summit, with more curved branches. The clusters are very round or subellipsoidal, and consist of heads straighter and more numerous than in the other three species. The achenia are remarkably small; being half the size of those of *F. canescens*. This last character is decisive, since in the other three species, which are otherwise very distinct, the achenia do not present such appreciable differences of size."

Such is Jordan's account of these four alleged species. The first, *F. spatulata*, he shows to be identical with *F. Jussiei* of Cosson and Germain; and he retains the name of *F. spatulata* (*Presl*) in accordance with the recognized rule of priority. For a similar reason Jordan's own name of *F. lutescens*, given to the second species, must yield before the earlier one of the Rev. G. E. Smith, whose *F. apiculata* is undoubtedly the same thing; although it seems probable that Mr. Smith may have had some specimens of *F. spatulata* in view while drawing up his character for *F. apiculata*, and may have thus laid stress upon the "*spathulate*" leaves of the latter, while that character more truly belongs to the former, as is well indicated by the name.

The third species, *F. canescens*, apparently intends the plant which ordinarily represents the Linnean *F. germanica* in herbaria. But in

this instance Jordan's figures are less characteristic; since that of *F. eriocephala*, in general habit and ramification, far better represents our ordinary *F. germanica*, than does his figure of *F. canescens*; and the same holds true of Sagot's French specimens, which precisely accord with our *F. germanica*, growing in cultivated ground. When the latter grows on dry hedge-banks and similar places, it is exactly the plant represented by Jordan's figure of *F. eriocephala*, except in being less cottony, and possibly having larger achenia. For the present, therefore, I must regard Jordan's third and fourth species as a single one only, sufficiently well represented by the plant so familiar to British botanists under the name of *F. germanica* (*Linn.*). Boue's Algerine specimens, labelled under the same name, have the copious tomentum of *F. eriocephala*, but their achenia are too immature to show their true size. The achenia of our common English *F. germanica* are rather smaller than those of *F. spatulata* and *F. apiculata*; but I have seen no English specimen so densely cottony as those from Africa.

I take it, therefore, that we have three apparent species in Britain, to which the names of *germanica* (or *canescens*), *spatulata*, and *apiculata* must be applied respectively; and these it will not be difficult to distinguish whenever well grown specimens are examined. With the exception of the Rev. G. E. Smith's Yorkshire specimens of *F. apiculata*, all the British specimens in my own herbarium belonged to *F. germanica*, until I began to seek particularly for the other two species in this county; and as I now find the *F. germanica* vastly more abundant and general within a circuit of thirty miles, than either of the others, it is probably the usual representative of the Linnean species in herbaria; and it is very well figured in English Botany.

The other two species, *spatulata* and *apiculata*, are distinguished at once from the former by the sharply pentagonal and conical form of their heads, larger in size, and only about half as numerous in the clusters; as also by their achenia, which are larger and more shining. From each other they are distinguishable by colour and ramification. *F. apiculata* is more of a grass-green hue, its tomentum yellowish, and scales crimson or purplish at their tips, especially in an early stage of the flower. *F. spatulata* has a leaden-grey tint, with more decidedly spatulate leaves, even those on the branches as well as those at the base of the stem. The ramification is much more spreading, giving a general habit more like that of *Filago gallica*, or some species of *Fedia*, than is seen in either of the other two species, in which the branches, if spreading at their bases, usually curve into

a suberect position. The heads are larger and more sharply angled than those of *F. apiculata*.

It should be added, nevertheless, that the species must be judged of by a combination of characters rather than by any single character in itself; and allowance must be made for the varied situations of growth. For instance, on dry gravelly roads the *F. germanica* is often much stunted, its branches spread widely, and the heads are fewer in number, larger in size, and more distinctly pentagonal; so that, in this state, it may be difficult to distinguish it satisfactorily from examples of *F. spatulata* which have grown under somewhat similar conditions. So again, one of my finest specimens of *F. germanica* has remarkably green and broad leaves, not undulated at the margin. And I have examples of *F. spatulata* with leaves equally green as those of *F. apiculata*; indeed, of a more lively green than in many examples of the latter. The lowest leaves of all three are not seldom spatulate; while the uppermost leaves of the true *F. spatulata* occasionally incline to the cordate-oblong or lanceolate form seen in the other two.

It may be expected that all three will be found widely diffused with us. In the summer of 1847 a specimen was given to me by Mr. Bull as probably referrible to *F. apiculata*, although the red colour was scarcely perceptible on the scales. The specimen was likely gathered near Guildford or Godalming; and the examination lately of numerous others from this county, now satisfies me that Mr. Bull was correct in his suggestion. Late last autumn, I found two or three very small and stunted specimens of the same species, in a sandy pathway near Ockham Pond, Surrey. Having again found it this past summer, and in better condition, in a lane on the sandy ridge called Fairmile, between Cobham and Esher, in the same county, I was induced to search the adjacent fields, and soon discovered an abundant crop in a neighbouring wheat-field. I have since found the same very sparingly in the stubble fields near Thames Ditton, Long Ditton, West Moulsey, and Walton. In course of my searchings a few stray specimens of *F. spatulata* were also discovered in Thames Ditton and Chessington parishes; and in crossing a wheat stubble by the Thames between Walton and Sunbury Loch, on the first of this September, I came upon a copious supply of the *F. spatulata* in an excellent condition for exhibiting its characteristic distinctions as compared with the other two, both of which grew very sparingly amongst the plants of *F. spatulata*. Mr. G. S. Gibson has met with both species in the vicinity of Saffron Walden. And it appears by the 'Phytologist' of the current month, that Mr. Woods has gathered the *F. spatulata* on

the beach at Studland, in considerable abundance. I have heard of other localities for one or other species, but can say nothing positive concerning them.

In conclusion, I would observe that certain questions remain to be settled. Which form is the *ipsissima* *Filago germanica* of Linnæus? What is really the *F. pyramidata* of Linnæus? Is the *Filago eriocephala* of Gussone distinct from the *F. canescens* of Jordan; and if distinct, have we both these latter in England? Are the *F. spatulata* and *F. apiculata* distinct from each other, and from the plant usually representing *F. germanica* in English herbaria? Lastly, what are the localities or general distribution of the two former in England; namely, of *F. spatulata* and *F. apiculata*?

HEWETT C. WATSON.

Thames Ditton, 3rd Sept., 1848.

P.S. Since sending the notes on *Filago germanica*, and its allies, I have been enabled to examine the Linnean herbarium, re-opened after the cleansing vatisation. *F. germanica* is there represented by three specimens, on different sheets. One of these, marked "*germanica*" in the handwriting of Linnæus, is our ordinary plant so named. A second is apparently *F. spatulata*. The third, marked "*pygmæa*" by Linnæus, and altered with pencil to "*germanica*" by Smith, is a distorted plant, probably belonging to *F. spatulata* also; certainly not *Evax pygmæa*. I find no *F. pyramidata* in the Linnean herbarium.

H. C. WATSON.

*Occurrence of Equisetum hyemale and E. umbrosum in Northumberland.* By JOSEPH SIDEBOTHAM, Esq.

It may be interesting to some of your readers to know that *Equisetum hyemale* and *E. umbrosum* are found in abundance on the banks of the Coquet, near Felton, Northumberland, and also near the celebrated hermitage of Warkworth. Of the *umbrosum* I dried a few barren fronds, to which any of your readers are welcome.

JOSEPH SIDEBOTHAM.

Manchester, September 9, 1848.

*Scotch Locality for Asplenium fontanum.*

By the Rev. W. T. BREE, M.A.

IN the August number of the 'Phytologist' I gave a most imperfect notice relative to *Asplenium fontanum* having been recently found in Scotland; but having unfortunately lost the memorandum I made at the time the information was given me, I was unable to state either the locality of the fern or the name of my informant. I have now ascertained through the kindness of Lady Maria Finch and her intelligent gardener, Mr. David Hutcheson, that *Asplenium fontanum* was met with by him in considerable abundance on "shaded rocks by the sea two miles north-east of Stonehaven, Kincardineshire, in 1842." I can now therefore entertain no doubt as to this beautiful fern being a native of Scotland.

W. T. BREE.

Allesley Rectory, Sept. 15, 1848.

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*Hereditary Variations of Plants.* (Extract from the 'Gardeners' and Farmers' Journal,' of September 9, 1848).

"THE following not less remarkable or interesting fact was related to us by Mr. M'Nab, namely, that he had sown the seeds of *Ilex Balearica*, from which he had produced the common Holly. He had also raised from the seeds of the tender Madeira Holly (*Ilex Perado*) a variety identical with that known as Hodgin's Holly, and although the offspring of a tender parent, yet, like Hodgin's variety, it was also quite hardy. We regard these as extremely interesting facts. We have here the *Ilex Balearica* reverting back into the type of the genus the common English Holly, and this, too, although an exotic, and acknowledged species; while in the case of the *Ilex Perado*, a plant scarcely deserving the name of even half-hardy, it produces an offspring not only wholly different and unlike itself, but what is far more remarkable, the progeny is hardy while the parent is tender."—Editor of the 'Gardeners' Journal,' in an article intituled "Notes of a Gardening Tour," and referring to the Botanic Garden of Edinburgh.

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*Authorship of the 'Flora Hertfordiensis.'*

By the Rev. W. H. COLEMAN, M.A.

WILL you oblige me by contradicting in your next No. the inference conveyed in an editorial note in your last, that the principal share in the 'Flora Hertfordiensis' is due to myself? This statement is altogether unjust to Mr. Webb, with whom both the design originated of publishing a County Flora, and who is now carrying it into effect, without any co-operation on my part beyond an occasional criticism, and (in Part 2) my assistance in correcting the press. It is true that the geographical arrangement of the work was sketched by me, and that I formed some of the district catalogues. But at least an equal share in the general observations on which the work is founded belongs to Mr. W.; and the present plan of the work, independent of the geographical arrangement, is entirely his. I should be sorry that the accidental circumstance of my name being better known to the botanical world should create an impression that I have had the larger share in the execution of the work: and for this, among other reasons, I was desirous that my name should not have appeared except as an ordinary correspondent. But as I could not persuade Mr. Webb to agree to this, and he has run the risk of losing part of his own due through his anxiety to do justice to me, you will excuse me if I enter a strong objection against such remarks as that which has called forth the present observations.

W. H. COLEMAN.

Ashby-de-la-Zouch, August 21, 1848.

P. S.—In my paper on Botanical Geography two misprints occur, which materially injure the sense. On page 217, line 31, "dissecting" should be "bisecting;" and page 220, line 23, "the Flora of the list" should be "the Flora of the first."

[I beg most explicitly to state that I had no idea of robbing Mr. Webb of any part of the credit due to him on account of the 'Flora Hertfordiensis;' from his own very explicit statement in the introductory notice I was perhaps led to believe that Mr. Coleman's share in the work was greater than it is. I believe it is notorious that these excellent botanists were fellow-labourers in the same field.—*E. Newman.*]

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*New Variety of Wheat.*

ADVICES from St. Petersburg, to the 12th August, mention that a new variety of the Arnautka wheat has recently been discovered and cultivated in Bessarabia. It is called the Kolus or large-eared wheat, on account of the peculiar beauty of its ears. At present it is limited to mere seed-wheat, and fetches twice the price of the ordinary Arnautka. One other and more important peculiarity of this grain is, that it is less affected by drought than any other varieties. At the same time it possesses several other features, being distinguished by its greater fertility, its deep amber color, and its earlier ripening. This important discovery was made by a peasant of the name of Bulatowisch, in the village of Troitzk, in the district of Bender, who, being a close observer of nature, detected in his crops certain ears which were larger and became ripe earlier than the rest of the crop. These he collected and sowed separately, and the result was an abundant harvest, and the introduction of a new and valuable variety of wheat. The Russian Government it is to be hoped will not let such an opportunity pass of rewarding one so deserving of a substantial mark of its favor. The event had created a great sensation amongst the agriculturists and dealers in grain, and the new wheat well merits being named after its discoverer.—*Morning Chronicle*, August 25, 1848.

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*Note on Alsine rubra, var. media, Bab.*

By FENTON J. A. HORT, Esq.

In the September number of the 'Phytologist' Mr. Woods speaks of having found at West Lulworth "on the chalk a form of *Arenaria marina*, with a very stout, woody root, showing several concentric circles." This brief description will apply well to a plant which I have myself observed in several localities this summer, possessing characters so marked, that botanists residing on various parts of our coasts may think it worth their while next year to make observations on the permanence of the form and the extent of its distribution. I take it to be the *Alsine rubra*, var. *media*, of Babington (*Lepigonum medium* of Fries): Mr. Babington tells me that on further study of his plant on the cliff at Tenby, and I have little doubt of its identity with mine, he is so convinced of its distinctness as to feel inclined

to follow Fries in erecting it into a separate species. The habitat is in each case remarkable: Mr. Woods finds it on the chalk cliff at West Lulworth, Mr. Babington on the (I presume, mountain limestone) cliff at Tenby, I on the soft slate at Ilfracombe, and on Devonian limestone at Plymouth and Torquay, and I believe on the new red sandstone near Dawlish, but in the last case I cannot vouch for the identity of the plant, having only seen it from the window of a railway carriage. But it is worthy of notice that in no case does it seem to grow actually on the sea-shore like *Alsine marina*: I always find it a little above highwater mark, just within reach of the spray in rough weather, and so firmly wedged into crevices of the rock that seldom can any force or care avail to preserve the woody root attached to the specimen. In general appearance it resembles *A. marina*, but is more elegant; the stems are more numerous, as well as the flowers, with which the plant, when in full bloom, is starred all over. But when examined minutely, it presents characters which, with the exception of the fleshy leaves, belong to *A. rubra*. The leaves themselves are tipped with a minute horny point: the stems, &c., are not downy, but thickly covered with glandular hairs, and all the seeds which I have examined have a "thickened rough border," but no traces of a wing.

FENTON J. A. HORT.

Torquay, September 27, 1848.

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*Accidental Introduction of Foreign Plants into Britain.*

By HEWETT C. WATSON, Esq.

In looking into the Second Part of the 'Flora Hertfordiensis,' recently published, I find under the head of *Erysimum orientale*, page 27, an incidental explanation to account for the appearance of foreign species in that county, which is well adapted to give a useful hint and caution to those botanists who may discover and place on record any similar novelties. The Author of the Flora writes of the *Erysimum orientale* thus:—

"We found a single specimen of this species on a newly-repaired towing-path near Ware Mill, in 1841; in company with *Brassica Napus*, *Saponaria Vaccaria*, *Asperula arvensis*, and *Echinosperrum Lapula*. The gravel with which the bank was repaired, was probably obtained from the bed of the river by dredging,"—

Now, suppose that the Author had stopped abruptly here, as some



2 and we should have been left with apparent evidence that the species 2  
/ botanical registrars (I am sorry to say) very probably would have done; /  
mentioned were old inhabitants of Britain, the seeds of which had re-  
mained long dormant under water. But how different will the aspect  
of the case become when the concluding portion of the paragraph is  
added to the former, in the following terms:

—— “and the seeds perhaps brought with flax to the Oil Mills, a  
circumstance which may account for several other scarce plants, not  
strictly native, being found in the immediate vicinity of Hertford and  
the river banks, and which, having ourselves met with, we think it  
right to include.”

No doubt it is right and judicious to mention such plants in a Local  
Flora; because, when thus accompanied by explanatory suggestions  
respecting their origin, the record is rendered a really valuable fact to  
the botanical geographer; although, if without the full explanation,  
it might only deceive and mislead him.

HEWETT C. WATSON.

Thames Ditton, October 4, 1848.

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*Note on the Botany of Wiltshire.* By T. B. FLOWER, Esq., F.L.S.

As I am about preparing for publication, in the pages of the ‘Phy-  
tologist,’ Contributions towards a Flora of the County of Wiltshire, I  
should feel greatly indebted to all those that have botanized in the  
county if they would favour me with any assistance in forming a cor-  
rect and as complete a list of the phænogamous plants and ferns as  
possible.

Any observations on the geographical distribution, or remarks on  
species, together with such localities for the rarer and commoner  
plants that may be considered of value, are particularly solicited,  
especially when accompanied with dried specimens.

T. B. FLOWER.

Seend, near Melksham, Wilts,  
October 3, 1848.

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*Localities for some of the Rarer Plants of Warwickshire.*

By the Rev. ANDREW BLOXAM, M.A.

IN continuation of Mr. Kirk's list of the rarer species of Warwickshire plants, described by him in the second volume of the 'Phytologist,' page 969, I beg leave to add the following, as observed by me in the neighbourhood of Atherstone.

*Atropa Belladonna* and *Dipsacus pilosus*, in an old stone-quarry on the left above Merevale Church.

*Polygonum Bistorta*, in a meadow on the side of the road opposite to Merevale Church.

*Vicia sylvatica*, *Campanula Trachelium*, *Epilobium angustifolium*, *Cardamine impatiens*, *Euphorbia amygdaloides*, *Scirpus sylvaticus*, *Equisetum palustre*, *Hieracium boreale*, *Asperula odorata*, &c., Harts-hill Wood.

*Gnaphalium erectum*, in two or three localities on the side of the Coleshill-road, about a mile from Atherstone, pointed out to me first by Mr. Nugent, of Atherstone.

*Mönchia erecta*, Atherstone Outwoods, also on Annesley Coalfield Heath.

*Potamogeton lucens*, reservoir at Oldbury.

*Sparganium natans*, *Helosciadium inundatum*, *Potamogeton rufescens* and *oblongus*, in ponds on Annesley Coalfield Heath; also on the same heath *Rubus plicatus* and *R. foliosus*, *W. & N.*: this is the *R. hirtus*, *≡ foliosus*, of Bab. 2nd Supp. to the Syn. of Brit. Rubi; and has been found by me also on Baxterley Common, and in several localities in Hartshill Wood.

*Juncus diffusus*, on Baxterley Common; this I believe is the first notice of its discovery in Warwickshire. *Osmunda regalis*: though I have not myself met with this beautiful fern, yet I understand from an individual who is well acquainted with it, that it grows in considerable abundance by the side of some of the ponds at Arbury, near Nuneaton. It is not, however, mentioned by Mr. Kirk in his list before alluded to, who describes several rare plants as growing in Arbury Park, and by the side of the ponds adjoining the hall.

In reference to an observation of Mr. Bree's, in the last No. of the 'Phytologist,' I may mention that four or five years ago I received from Mr. Murcott specimens of *Botrychium Lunaria*, from Coleshill Bog. I believe it has been overlooked by me in my own neighbourhood from its growing amongst thick old turf, never apparently subjected to the plough, and which generally overtops its fronds. As it

soon withers, after having ripened, it is only conspicuous for about two months in the year. In looking for it more carefully at the proper season, and in likely situations, I found it in three other localities in the parish. I take the present opportunity of stating that I lately found, on a temporary manure-heap not far distant from my residence, *Erodium moschatum* and *Chenopodium murale*, neither of which I have observed in Leicestershire before.

ANDREW BLOXAM.

Twycross, October, 1848.

*British Rubi in Yorkshire.* By the Rev. ANDREW BLOXAM, M.A.

HAVING during the month of August last been sojourning for a few days at Horton Rectory, between Rotherham and Doncaster, I had an opportunity of observing the different species of Rubi growing in that neighbourhood, of which I send you a list, with a few remarks.

1. *R. Idæus*, Linn. Horton Cliff, &c.
2. *R. affinis*, W. & N. A form coincident with that in Mr. Leighton's fasciculus from Shropshire. It is abundant in the hedges about Horton and Ravenfield, and readily distinguished by its numerous and strongly curved prickles on the flowering panicle, with their well-marked purple bases and yellow tips. When this species becomes better known, it will, I think, be found to be very generally diffused at least throughout the midland counties of England. I have it from Mr. Lees, in Worcestershire. Mr. Babington finds it in great abundance at Llanberris, North Wales, Mr. Leighton in Shropshire; I have also observed it in great quantity near Rugby and Grendon, Warwickshire; at Newbold Verdun and other places in Leicestershire; in South Wood, near Calke Abbey, Derbyshire; and possess also specimens of it from Bredbury Wood, near Manchester.

3. *R. nitidus*, W. & N. Near Swinton.
4. *R. corylifolius*, Sm. Horton Cliff, &c.
5. *R. discolor*, &c., Bab. Syn., *R. fruticosus*, E. B. Roch Abbey Wood, &c.

6. *R. leucostachys*, Sm., *β. vestitus*, Bab. Syn. This and *R. cæsius* are the two prevalent forms in Roch Abbey Wood.

7. *R. sylvaticus*. Horton Cliff. A form identical with that in Mr. Leighton's fasciculus.

8. *R. Borreri*, Bell Salt. In Denaby Wood, near Mexborough. Mr. Coleman finds it in considerable quantity in South Wood, Derby-

shire. It is also abundant on the Atherstone and Coleshill road, Warwickshire, about a mile from the former place, growing with *R. Guntheri*, *W. & N.*, and other more common forms. I find it also in the neighbourhood of Rugby, on the Dunchurch-road, in several localities. I have received it from the late lamented Mr. Edward S. Wilson, from the neighbourhood of Congleton, Cheshire. The other closely allied, if at all distinct species, *R. Sprengelii*, *W. & N.*, is found abundantly on Bardon Hill, Leicestershire, where it is readily distinguished by its beautiful pink flowers. Mr. Lees finds it on Bromsgrove Lickey, and Mr. Sidebotham in Bredbury Wood, near Manchester, from both of whom I have received specimens. This appears to me to be the weak, and *R. Borreri*, *Bell Salt.*, to be the more robust, form of the same species.

9. *R. carpinifolius*, *W. & N.* Horton Cliff.

10. *R. amplificatus*, *E. Lees.* *R. macrophyllus*,  $\gamma$ . *amplificatus*, *Bab. Syn.* Horton Cliff.

11. *R. rudis*, *W. & N.* Near Ravenfield.

12. *R. radula*, *W. & N.* In hedges.

13. *R. hystrix*, *W. & N.* *Radula*,  $\beta$ . *hystrix*, *Bab. Syn.* In Roch Abbey Wood. This appears to me to be a perfectly distinct species from *R. radula*, and, as far as my observation extends, to be very generally diffused.

14. *R. Kœhleri*, *W. & N.* Common in hedges about Horton and Ravenfield.

15. *H. nemorosus*, *Hayne, dumetorum*, *W. & N.* One of the most common of our British Rubi in the midland counties.

16. *R. cæsius*, *Linn.* Common. Horton Cliff and Roch Abbey Wood.

17. *N. saxatilis*, *Linn.* In great abundance in two or three localities in Roch Abbey Wood.

Two or three other forms were also observed by me, the identity of which I have not as yet satisfied myself about.

ANDREW BLOXAM.

Twycross, October, 1848.

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*Notice of the 'London Journal of Botany,' Nos. 76 to 82, for April to October, 1848.*

No. 76. *Original Papers*: "Sur la Famille des Linées;" by Dr. Planchon. "On some new Musci, collected by Professor W. Jamieson, on Pichincha;" by Dr. Thomas Taylor. *Botanical Information*: Dr. Thomson's Scientific Mission to Thibet. Notes on the Botany of the United States; by Dr. Bromfield. On *Conserva ægagropila*; by Rev. T. Salway. Thibetian Barley. Brief Notices of Plants from Sir George Simpson's Journey round the World. *Notices of Books*: 'Journal of the Indian Archipelago and Eastern Asia.' 'Descriptions et Figures des Plantes Nouvelles et Rares du Jardin Botanique de l' Université de Leyde;' par W. H. De Vriese.

No. 77. *Original Papers*: "Prodromus Monographiæ Ficum;" by Professor Miquel. *Botanical Information*: Extracts from the letters of Dr. Hooker, written during a botanical mission to India. *Musa textilis*, &c. North American Botany. *Notices of Books*: 'Opuscula Omnia Botanica Thomæ Johnsoni.'

No. 78. *Original Papers*: "Mosses collected by T. Anderson, Esq., on the Coast of China, from Chusan to Hong Kong;" by W. Wilson, Esq. "On the Specific Characters of certain new Cryptogamic Plants, collected by Professor W. Jamieson, on Pichincha, near Quito;" by Dr. Thomas Taylor. "Contributions towards a Flora of Brazil;" by Mr. George Gardner. *Botanical Information*: Extracts from Dr. Hooker's letters, continued. A continuation of Mr. Howard's account of Leichardt's travels in New South Wales.

No. 79. *Original Papers*: "Contributions to the Botany of South America;" by John Miers, Esq. *Botanical Information*: Continuation of Dr. Bromfield's Notes on American Botany. Herbarium of the late Dr. Thomas Taylor. Arrival of plants from Swan River, &c. Letter from Parlatore to Auguste de St. Hilaire. *Notices of Books*. 'Nederlandsch Kruidkundig Archiff.' Gardiner's 'Flora of Forfarshire.' Gray's 'Botany of the Northern United States.' Tuckerman's 'Synopsis of the Lichens of the Northern States and British America.' Sprague and Gray's 'Genera Floræ Americæ Boreali-Orientalis illustrata.' Engelmann's 'Sketch of the Botany of North Mexico, in Wislizenus's Tour.' Nuttall's 'Description of Plants collected by Gambel in the Rocky Mountains,' &c. Ralfs' 'British Desmidiæ.' Hoffmeister's 'Travels in Ceylon,' &c.

No. 80. *Original Papers*: "Contributions towards a Flora of

Brazil;" by George Gardner. "Prodromus Monographiæ Ficum;" by Professor Miquel. *Botanical Information*: 'Algæ Novæ Zealandiæ.' Herbarium and Library of the late Dr. Taylor. *Notices of Books*: 'Posthumous Papers of William Griffith.' Mitchell's 'Journal of an Expedition into the Interior of Tropical Australia.'

No. 81. *Original Papers*: "Prodromus Monographiæ Ficum;" by Professor Miquel. "On some new Chinese Plants;" by H. C. Hance, Esq. "Sur la Famille des Linées;" by Dr. Planchon. *Notices of Books*: Ralfs' 'British Desmidiæ.'

No. 82. *Original Papers*: "Sur la Famille des Linées;" by Dr. Planchon. "Description of some Plants new to the British Flora;" by W. Mitten, Esq. "On a new kind of Phormium;" by M. Auguste de Jolis. *Botanical Information*: Extract from the Indian News. Dr. Stocks' on the Botany of Scinde. Dr. Stocks' 'Botanical Excursion to Shah Bilawul.' 'Notice of a Species of Fumaria new to Britain;' by Mr. Mitten. *Notices of Books*: Vriese's 'Descriptions et Figures des Plantes Nouvelles,' &c. Pritzel's 'Thesaurus Literaturæ Botaniciæ.' 'Plantæ Preissianæ.' Trautvetter's 'Plantarum Imagines et Descriptiones Floram Rossicam illustrantes.' Emerson's 'Report on the Trees and Shrubs of Massachusetts.' Tuckerman's 'Lichenes Americæ Septentrionalis Exsiccati.' Pappe's 'List of South African Plants used as remedies by the Colonists.' Miquel's 'Revisio Critica Casuarinarum.'

It will be seen from this list of contents of the London Journal, that they are addressed to general botanists, and possibly may not possess much interest in the eyes of those who cultivate British botany in particular. To this the last number offers one important exception, by the paper of Mr. Mitten, which professes to describe plants not before "noticed by any writers on British Botany," so far as Mr. M. was aware. New British plants come upon us so frequently now, that a writer may well be excused for supposing himself to be announcing, for the first time, some plants which had been earlier recorded by others. Mr. Mitten requires this indulgence for a part of his list of novelties; perhaps not for all of them. But before seeing examples of the latter, we feel it unsafe to say whether they are truly novelties, or simply familiar plants under fresh names. The following is Mr. Mitten's list:—

1. *Potentilla mixta* (Nolte apud Reich. fl. Germ. Exsic. No. 1743), found on waste ground near Valebridge, in Keymer, Sussex, in small quantity. On this plant the author of the paper remarks, "undeniably very close to *Potentilla reptans*, Linn., of which it may be but

a variety." For our own part, we have a sort of suspicion that it is the *Tormentilla reptans* of English botanists..

2. *Filago Jussiei* (Cosson and Germain). Found on cultivated land at Hurstpierpoint, Sussex. This is the *Filago spatulata* of Presl, already several times introduced to the readers of the 'Phytologist,' and which should hardly have been given in the October number of the 'London Journal,' as unnoticed by any writers on British Botany, seeing that its discovery in two or three counties was recorded by Mr. G. S. Gibson, in the August number of the 'Phytologist;' not obscurely in a mixed report, but in a distinct article expressly so intitled. It was again mentioned in the September number of the 'Phytologist' (Phytol. iii. 269), as found in "several places" in Surrey, through a Report from the Botanical Society.

3. *Mercurialis ovata* (Stud. et Hoppe). Found in hedgerows near Hurstpierpoint, Sussex. "It is," says Mr. Mitten, "probably but a state of *M. perennis*."

4. *Carex paludosa*, var. *Kochiana*. Found in ditches in the level near Littlehampton, Sussex. *Carex Kochiana*, *De Cand.*

5. *Lolium linicola* (Sonder). Found with *L. temulentum*, among various crops on cultivated land about Hurstpierpoint, Sussex. "It may be objected to *L. linicola*, that it has been introduced with foreign seed, which may be true." It was recorded from a field near Catterick Bridge, Yorkshire, in Babington's Manual, second edition, in 1847; the author of the Manual remarking that it is "probably not a native." On this record and authority probably the *Lolium linicola* was given in the second edition of the 'London Catalogue of British Plants,' published last winter. Surely Mr. Mitten should have looked into those two fullest lists of British plants before publishing *L. linicola* among plants not noticed by *any* writers on British botany. Probably the *L. multiflorum* of some English botanists.

6. *Triticum biflorum* (Brignoli). Found by Mr. G. Don, on rocks on Ben Lawers, and preserved in Mr. Borrer's herbarium. "The only British *Triticum* with which it can be confounded is *T. caninum*, from which it may be distinguished by its leaves smooth on both sides, its usually two-flowered spikelets, and its want of the long awn; it also appears to be a more slender plant, with narrower leaves."

7. *Fumaria agraria* (Lagasca). Observed by Mr. Mitten among the British *Fumarie* in Mr. Borrer's herbarium.

The characters, &c., of these plants are chiefly transcribed from Koch's Synopsis, second edition; and we may therefore give a general reference to that well-known work for them. And if the plants,

or some of them, are not quite so "new to the British flora" as the author may have at first supposed, we are still glad to see attention drawn to them by Mr. Mitten.

It may be presumed that a new Irish Saxifrage is to be described in the next coming number of the 'London Journal;' the October number containing a figure of "*Saxifraga Andrewsii*, *Harv.*," without letter-press. The figure conveys the idea of a narrow-leaved form of *S. umbrosa*, though the flowers are larger.

C.

*Record of some of our Rarer Plants growing in the Valley of the Don, between Doncaster and Conisbro' Castle. Soil calcareous.*

By PETER INCHBALD, Esq.

*Ranunculaceæ.* *Helleborus fœtidus* and *viridis* and *Aquilegia vulgaris*. In several of the woods near Doncaster the last of the three flourishes in the wildest profusion. *Helleborus fœtidus* is less frequent than *H. viridis*.

*Caryophyllæ.* *Saponaria officinalis* covers the banks of the Don near Sprotbro,' and flowers abundantly.

*Saxifrageæ.* *Parnassia palustris* and *Chrysosplenium oppositifolium*. I have had specimens of the rarer *Chrysosplenium (alternifolium)* and *Adoxa moschatellina* sent to me from Roch Abbey, an old ruin about twelve miles from Doncaster.

*Campanulaceæ.* *Campanula latifolia*. The woods and hedgerows are richly decorated with this elegant bell-flower late in the summer.

*Compositæ.* *Doronicum Pardalianches*, *Tanacetum vulgare*, and *Bidens tripartita*. Several patches of that doubtful native, *D. Pardalianches*, occur in the valley, far from all trace of garden cultivation. It flowers early in May.

*Boragineæ.* *Echium vulgare* and *Cynoglossum officinale*. The bugloss grows on the top of the keep at Conisbro'.

*Liliaceæ.* *Tulipa sylvestris*, *Ornithogalum luteum* and *Convallaria majalis*. The leaves of the tulip are conspicuous in the grass fields early in the spring, but by the middle of May they are nearly hidden by the herbage. The flowers are seldom met with out of cultivation. The lily of the valley covers large tracts of ground in the woods near Doncaster, flowering plentifully.



To a collector who is not afraid of long walks, the neighbourhood also offers the following rare plants: *Ranunculus lingua*, *Cardamine amara*, *Astragalus Glycyphyllos*, *A. hypoglottis*, *Potentilla verna*, *Inula Helenium* (I fear eradicated), *Conyza squarrosa*, *Carlina vulgaris*, *Gentiana Amarella*, *Atropa Belladonna*, *Samolus Valerandi*, *Scrophularia vernalis*, *Leonurus Cardiaca*, *Euphorbia platyphylla*, *Stratiotes aloides*, *Neottia spiralis*, *Listera Nidus-avis*, *Gymnadenia conopsea*, *Ophrys muscifera*, *O. apifera*, *Narcissus biflorus*, *Paris quadrifolia*, *Carex digitata*, *Elymus europæus*, *Melica nutans*, *Lastrea Thelypteris*, *Lastrea Oreopteris*, *Osmunda regalis*, and *Equisetum hyemale*.

PETER INCHBALD.

Storthes Hall, Huddersfield,  
October 4, 1848.

*Record of the more uncommon of the Plants growing in the Neighbourhood of Huddersfield. Soil siliceous: sub-soil argillaceous.* By PETER INCHBALD, Esq.

*Ranunculaceæ.* *Ranunculus hederaceus* abounds in the ditches and shallow rivulets in the high lands.

*Fumariaceæ.* *Fumaria capreolata* is frequent amongst bushes and on upland fallows. It adds much to the beauty of the few hedges that this district contains.

*Violeceæ.* The moors in the neighbourhood afford in abundance the *Viola palustris*. The sweet violet is exceedingly rare in the south-western parts of Yorkshire.

*Caryophyllæ.* *Arenaria rubra*, a true sand plant, is very common by road-sides, growing on the very edge of the beaten path.

*Saxifrageæ.* *Chrysosplenium alternifolium* is plentiful in woods and by the borders of rivulets in the mountainous parts of the West Riding. *Saxifraga umbrosa* completely naturalized in the woods near Storthes Hall, covering large tracts.

*Rosaceæ.* The woods abound with plants of *Rubus Idæus*, which sometimes grow to the height of five or six feet.

*Umbellifereæ.* This tribe is but scantily spread over the district. *Oenanthe crocata* is, however, well worthy of record.

*Ericaceæ.* *Vaccinium Myrtillus* is very plentiful on turfy soil in the woods around Huddersfield. *Pyrola media* occurs but sparingly.

*Campanulaceæ.* *Jasione montana* occurs in dry sandy lanes and on bank-sides.

*Compositæ.* *Solidago Virgaurea* adds much to the beauty of Storthes Wood in the autumn months. Though but thinly scattered throughout the county, it flourishes here in the wildest profusion. I have gathered *Gnaphalium rectum* on sandy heath-land.

*Apocynæ.* *Vinca minor* grows interspersed with *Saxifraga umbrosa*, and in such abundance as to preclude the possibility of its being an escape from garden cultivation.

*Scrophularinæ.* *Veronica montana* is the commonest of the genus in the woods and thickets in the neighbourhood.

*Orchideæ.* *Epipactis latifolia* rears its purple spike of flowers on the borders of woodlands. *Habenaria viridis* is not unfrequent in grassy meadows.

*Amaryllideæ.* *Narcissus pseudo-Narcissus* has given the name of "Dilly Wood" to an oak-planting near the Hall. It is said to be common in the woods near Halifax.

*Juncæ.* *Luzula sylvatica*. Noble plants of this species are frequent in the damp, spongy parts of Storthes Wood. It is common throughout the south-west district.

*Filices.* *Grammitis Ceterach* occurs on old walls. *Ophioglossum vulgatum* in grassy pastures.

*Equisetaceæ.* *Equisetum sylvaticum* is everywhere abundant in the woods.

PETER INCHBALD.

Storthes Hall, September, 1848.

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*Notes and occasional Observations on some of the Rarer British Plants growing wild in Hampshire.* By WM. ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 290).

In presenting to the 'Phytologist' this fourth part of my Notes and Observations on the plants of Hampshire, it will already have become obvious, from the perusal of the third portion, that a full enumeration of the species known or reported to inhabit the county has been tacitly substituted for that selection of the *rarer* plants only, to which, as the heading to the first and subsequent divisions plainly show, I certainly intended to have confined myself at the outset. Several

reasons led me to deviate from the more restricted, to follow the wider plan, though by so doing I should nullify the title prefixed to these contributions, and possibly be charged with carelessness, inconsistency or prolixity in not adhering to my original purpose of conciseness. Yet, since to pass over such change of plan without a word in explanation might justly create surprise, I shall briefly state my reasons for the alteration. First, the difficulty in deciding where the line should be drawn betwixt common and uncommon plants had to be grappled with and disposed of, a difficulty the magnitude of which becomes greater the nearer it is approached, till at length it assumes the form of a problem, for which a satisfactory solution is hardly to be hoped. 2ndly. A principal object in preparing the Notes was to present a view of the geographical distribution of plants in Hampshire that might be compared with the distribution of the same or different plants over other counties or areas in any given part of the kingdom possessing the means of comparison. But to give such views their full value, it is requisite that the number as well as the nature of the species should be recorded; this cannot be done so long as we exclude all mention of plants reputed common, since the amount of these must always remain indefinite; besides that the omission of them leaves their very existence a matter of doubt and conjecture in some cases. It may at first sight appear trifling and superfluous to even name such species as *Bellis perennis*, *Urtica dioica*, *Poa annua* and *pratensis*, *Stellaria media*, *Taraxacum officinale*, and other weeds reputed common everywhere; but are we warranted in a confident assumption that there is no exception to the ubiquity of one or all of these, that there is no spot, perhaps an entire district, in which they may not approach the limit of rarity, or even fail altogether? Were such local catalogues as the present intended merely to subserve the acquisitive habits of the plant-collector, it would be highly advisable to discard from them all species which could but swell their bulk without profit to the inquirer; but regarded in their true light of statistical documents, every species, however common and universal, becomes an important unit when the floral census of a county or a kingdom has to be ascertained. A last and very important reason for publishing this catalogue in *full*, has been to enable my botanical friends and correspondents to see exactly, not only what plants are present or absent from the county and its island district, but in what proportion the species are rare or common, and from the stations quoted to judge which parts of the county have been best explored, and which most neglected by botanists. They

will then be in a better condition to diminish the apparent infrequency of certain plants here given as scarce, by the communication of habitats from the less examined districts, or to supply novelties on the sure ground that they are such, because *specially omitted by name*, whenever attention has not been called, as I shall do in some instances, to the probability of their occurrence. For the Isle of Wight I am desirous rather of having new *species* than receiving additional stations for those already known to inhabit it, except, indeed, for plants of great or considerable rarity, fresh stations for which will be at all times acceptable. Desiderata for the county comprehends, of course, the island part of it, but as the mainland produces many species and genera not yet found in the latter, great care has been taken throughout to note this deficiency under the proper heads, so that a contributor need not fear to send a specimen or notice of a plant, however common, as an addition to the island or county flora, if he will be only at the trouble to refer to its place in the natural sequence adopted in this catalogue, and observe whether it be entered or omitted. In the former case, he may rest assured that unless mention is made to the contrary, the species is common to both divisions of the county; in the latter, he may feel secure that his contribution will be received with all the pleasure of a new accession to the Hampshire Flora. For convenience sake, the nomenclature employed is that adopted by Mr. Babington in the second edition of the Manual, as the text-book most deservedly in use with all who wish to keep up with the progressive state of botany in this and other countries of Europe. In a more elaborate and critical performance than a catalogue like the present, some deviations from the nomenclature of the above excellent work would have suggested themselves.

In accordance with the change of plan which has just been adverted to, and before proceeding with the remaining orders of the Hampshire Flora, I have judged it expedient to insert in this place a second supplementary list of species not at first intended for publication in the three foregoing parts of these notes, together with some omissions which it has since appeared desirable to supply regarding plants already mentioned therein. The ensuing portions of this catalogue will present a view of the entire vegetation of the county as far as known to me, in an unbroken series of genera and species, forming a Prodrômus, the aim of which is to invite the attention of botanists to this hitherto much neglected part of England,\* by showing them

\* See 'Phytologist,' ii. 998. The gratifying response to the appeal contained in

what may be expected from farther research in a field so fertile and full of future promise, and to solicit their continued co-operation in collecting materials for an enlarged and descriptive flora already far advanced towards completion, the result of several years' assiduous observation and research.

*Anemone nemorosa*. Profusely in woods, thickets, and on hedge-banks in the island and county, the flowers often deep purple or rose-red, and occasionally semidouble. *A. Pulsatilla* should be looked for on the downs along the northern limits of the county.

*Ranunculus sceleratus*. In wet places throughout the county and island, but certainly one of the rarer species, in the latter at least, though generally diffused, occurring at wide intervals, and seldom in abundance on any single station. *R. Ficaria*, *Flammula*, *acris*, *repens*, and *bulbosus* abound over the entire county and Isle of Wight.

*Caltha palustris*. Common in the island and county, in wet or boggy meadows, thickets, and by streams, &c.

*Helleborus viridis*, add, In the deep stony lane on the left hand just before the turning to Norton Farm (Selborne), and at the top of Middle Dorton, under the hedge, Rev. G. White. I searched for the plant in the former place many years ago, and again this summer, without finding a vestige of it, and attribute its disappearance to the wearing away of the loose rocky soil forming the perpendicular sides of the curious hollow way in question, which must have undergone great changes since White's time from the action of the elements. I came, however, quite unexpectedly upon the species in what I have little doubt is White's other station at the upper part of Great (Middle?) Dorton (beech hanger), in a thick covert of briars and brambles, as truly wild and sequestered a spot as could well be required by the most inveterate contender against the claim of this species to be called native. A solitary specimen I found several years ago in St. John's Wood, at Ryde; but have never detected it since in any part of this island.

——— *foetidus*, add, In considerable plenty in rough, stony pasture-ground about St. Lawrence and Woolverton, Isle of Wight,

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that paper may be judged of from the large number of genera and species that I have been enabled to erase from the list of desiderata there given, in just one year from the date of publication in this journal. The value and amount of these can be readily seen by comparison of the two lists of the then unknown and unrecorded plants above referred to with the present catalogue of ascertained natives.

and I have no doubt indigenous. On a sloping chalk-bank above the Crab and Lobster Inn at Ventnor, *possibly* introduced. No one who has witnessed the glorious profusion of this handsome evergreen in the profound solitudes and deep recesses of our majestic beech woods can, I think, reasonably hesitate to admit its right to rank amongst our undisputed natives. This is the commoner of our two British species in the south of England, as *H. viridis* seems to be in the north. The latter abounds in some parts of Yorkshire, where both Mr. Borrer and the Rev. G. E. Smith consider it as truly wild, and my opinion is now in favour of its being equally so in Hants, though less general and abundant than farther to the northward. It is likewise the more prevalent species in Germany, where *H. foetidus* is rare, except towards the south in the Tyrol and the coasts of the Adriatic, its evergreen character unfitting it probably for the severe winters of an interior climate from which the deciduous nature of *H. viridis* protects the latter.

*Nymphaea alba*, add, Plentiful in the Lymington river above Hayward Mill.

*Papaver Rhœas*, var. *β. strigosum*, Bönningh (Prod. Fl. Monast. p. 157). Stem more branched near the root, hairs fewer, those on the peduncles appressed (excepting immediately below the flower), capsules rather less globose. Near Brading, Dr. T. B. Salter! Probably a hybrid betwixt *P. Rhœas* and *dubium*, which both abound in that neighbourhood. The *P. intermedium* of Beeker (Fl. der Gegend um Frankfort am M.) is doubtless a similar mule production wanting only the appressed hairs on the peduncles.

*Glaucium luteum*. Varies, as Mr. Pamplin has remarked to me, on the Hampshire coast, with flowers inclining to orange or tawny, like the *G. fulvum* of the gardens. Hayling Island, &c.

N. B.—*Corydalis solida* was omitted in the former part of these Notes, because I hear from the Dean of Winchester that it is no longer to be found at Wickham, as recorded on his authority in the 'English Flora.' The station I think the Dean told me was the site of an old garden, and of course inadmissible. *C. lutea* is found here and there subsontaneous on old walls, but too sparingly and imperfectly established to find a place with propriety as a naturalized denizen of the Hampshire Flora.

*Fumaria officinalis*. Very frequent. A shadow of suspicion has been cast on the indigenous origin of the fumitory, in common with other weeds that usually affect cultivated ground, or are chiefly found following the footsteps of man. I however remarked the present spe-

cies to abound on the wildest part of that wild waste called Langwood Warren, near Winchester, where spade or plough never contended against its all but hopeless sterility.

*Fumaria capreolata*, add, At Oakhanger, near Selborne.

——— *Vaillantii*. A specimen of this, or of *T. parviflora*, or *micrantha*, was found by Dr. Salter in a field near Weeks's by Ryde, a few years back, but the example which he kindly communicated to me has been accidentally lost, nor have I been able to rediscover the plant there or elsewhere in the island.

*Nasturtium officinale*. Abundant in the county and island.

*Cardamine pratensis*, *hirsuta*, and *sylvatica*. The last a variety probably of the second; are all abundant here and on the mainland of Hants.

*Sisymbrium officinale*. Abundant.

——— *Thalianum*. Copiously in fields in the Isle of Wight, and perhaps in the county generally, but very rare about Fareham, according to Mr. Notcutt.

*Alliaria officinalis*. Abundant in hedges and on grassy banks all over the Isle of Wight, and I believe the county also.

*Brassica Napus*. Common in cultivated fields and fallows over the island and county. I am unable to say whether or not we possess *B. campestris*, as the plant so called has always eluded my search, if indeed there exists any such thing apart from *B. Napus*, but its variety  $\beta$ ., as it is now considered, *B. Rapa*, *L.* (turnip), is occasionally naturalized, or rather has strayed from the fields on to the adjoining banks in some places.

——— *nigra*. Abundant in many parts of the Isle of Wight, but not universally distributed. Common about Ryde, &c. I am not prepared to state the distribution of this and the following in the county at large.

*Sinapis alba*. Cultivated and waste places, but not general in the Isle of Wight. Very plentiful at Ventnor. On sea-banks in Sandown Bay, &c.

——— *arvensis*. Far too profusely in cultivated fields everywhere.

† *Koniga maritima*. Naturalized here and there on and under walls, and in waste ground by the sea-shore, but in all instances obviously escaped from gardens and scarcely persistent.

*Draba verna*. Walls, banks, and pastures. Abundant in the island and county. On Ryde Dover, &c. Hardly known about Fareham, Mr. W. L. Notcutt.

*Cochlearia officinalis*. Possibly not uncommon in the county, but

certainly very rare in the Isle of Wight, where I have found it but once on an eastern fence with *C. danica* on High Down Freshwater, directly above and at the back of Watcomb Cave, but in no great quantity. The var. *β. grænlantica*, Sm., I have on the authority of my friend the Rev. G. E. Smith, as growing on the edge of Freshwater Down, but not having yet fallen in with this alpine form myself, I am inclined to believe it was inadvertently named in place of the commoner state of *C. officinalis*, and that his station and mine are identical.

*Cochlearia danica*, add, Plentiful on the South Beach, Hayling Island.

———— *anglica*. Muddy places near the sea in the county and island, but rare, at least in the latter. Shores of Brading Harbour, Yarmouth; Mr. Snooke. Betwixt Southton and Netley.

† *Camelina sativa*. See *Alyssum calycinum*, p. 209. Of this I have seen no specimen, and from the circumstance mentioned under the head now quoted, of its being mostly if not always in this country the associate of flax, I am in doubt as to the accuracy of the fact of its occurrence near Alverstoke. N. B.—*Lepidium sativum* occurs here and there partially naturalized in this island on banks, waste ground, and by road-sides at Sandown, Ventnor and elsewhere, but is very fugitive in all its casual stations.

*Crambe maritima*. In various places along the south shore of Hayling Island, very sporadical, though truly indigenous. A single specimen found by me some years back, on the sandy beach at Norton Freshwater, western coast; Dr. Pulteney in Hamp. Rep.

*Cakile maritima*. Sandy shores of the county and island; extremely common, Sandown Bay. Abundant near the south-west corner of Hayling Island.

*Raphanus Raphanistrum*. Not uncommon, and sometimes abundant in cultivated fields in the Isle of Wight, and I presume throughout the county. Flowers sometimes white, and with the veining of the petals very faint and inconspicuous.

*Frankenia levis*, add, Very common in mud flats on Hayling Island, Emsworth, &c.

*Drosera longifolia*, add, Short Heath Oakhanger, near Selborne.

———— *anglica*. Ramsdown, near Heron Court, Christchurch, Mr. Curtis (in litt.), Icon ad exemplar ex loco in Brit. Entom. x. t. 473. Mr. C.'s exquisite figure represents the true *anglica*, which I have not seen from this county, and inserted solely on the authority



of Pulteney, which is thus corroborated for a plant of decided rarity in the south of England.

*Parnassia palustris*, add, In various parts of the (New) Forest ; Mr. J. S. Mill in Phytol. i. p. 92.

*Dianthus proliifer*, add, In considerable plenty on the south beach, Hayling Island, along the way to the Passage House, October 3rd, 1848, and still in flower. Cumberland Fort, Portsea Island ; Dr. Macreight, Man. Brit. Bot.

——— *Armeria*, add, Wicor Hard ; Mr. W. L. Notcutt.

*Silene maritima*, add, Abundant on Hayling Island. A variety with the margin of the leaves cartilaginously spinulose occurs occasionally in the Isle of Wight.

*Lychnis Flos-cuculi*. Very frequent in wet places.

——— *Githago*. Very common, and often far too abundant amongst corn and other crops.

*Spergula nodosa*, add, Sandy ground in the New Forest ; Mr. T. B. Flower !

*Sagina procumbens*. Common everywhere, on and under walls in dry pastures, &c.

——— *maritima*. Rare ? Sandy shore, Gurnet Bay, and at St. Helen's, Isle of Wight. At West Cowes, near the Yacht Club House ; Dr. Martin !! Probably not uncommon on the Hampshire coast.

——— *apetala*. Corn-fields and dry pastures frequent, at least in the island. Abundant near Ryde.

*Alsine rubra*. Common on dry sandy ground. Profusely on rocky ledges behind Bonchurch, with *Crithmum maritimum*, and on the chalk cliffs at Freshwater Gate, Isle of Wight. The plants in these maritime situations preserve their character as regards the shape and roughness of the seeds, length of the capsules, and aristate leaves, but the latter are semi-cylindrical beneath, or nearly so, the plant very much branched, forming dense tufts, the roots thick (perennial ?) and as well as the base of the stems, subligneous. This form accords with the description of *Arenaria macrorhiza*, Req. in Bartoloni's Flora Ital. iv. p. 687. *A. rubra*,  $\gamma$ . *macrorhiza*, Moris, Fl. Sard. i. p. 278. *A. media*,  $\beta$ . *macrorhiza*, D. C., in Duby Syn. ii. p. 1025, and which Moris judiciously considers a mere variety, assigning very sufficient reasons for his opinion.

——— *marina*. Salt-mashes and waste ground by the sea, common. A good species ?

*Stellaria uliginosa*. Frequent in wet and boggy ground.

*Stellaria graminea*. Abundant over the county and island. Var. *β. intermedia*, Gaud. Fl. Helv. iii. p. 185. Petals much longer than the calyx; leaves more or less glaucous. Near Westridge, Isle of Wight.

—— *holostea*. Profusely bedecks our hedgerows with its pure, starry blossoms in spring and early summer. Var. *β. laciniata*. Petals scarcely equalling the calyx in length, deeply divided almost to the base into three segments, of which the middle one is linear-lanceolate, the two exterior with a tooth on the inner side. Quarr Copse, Binstead, Isle of Wight, May, 1838. Of this singular variety I found a good many specimens, and at first imagined the laciniated appearance of the petals to have resulted from mutilation by insects, till the regularity of the monstrosity in all, which I traced in the bud, proved to be the work of Nature. In this state the flowers bore some resemblance to those of *S. uliginosa*. A form very similar, if not the same, is recorded in the 'Phytologist' (Phytol. i. 264) for July, 1842, as found near Pont-y-Pool, by Mr. J. Bladon.

*Cerastium glomeratum* and *C. triviale*. Very common in pastures, by road-sides, and in waste places over the county and island.

—— *semidecandrum*. On waste, sandy ground, wall-tops, &c., very common in spring and early summer in the Isle of Wight, as on Ryde Dover, &c. A most variable and perplexing plant, on the different forms of which botanists have wasted much time and ingenuity in endeavouring to find permanent marks of distinction where none exist. We need but compare the descriptions and figures of those who have laboured the most to elucidate our common *Cerastia*, to be convinced that not one has seized upon any absolutely fixed mark of distinction betwixt *C. triviale*, *semidecandrum*, *tetrandrum* and *pumilum*, the very multiplicity of their synonyms, and the elaborate commentary of Fries (Nov. Fl. Suec.), who has still further augmented the difficulty attending their study by increasing the species and changing and mixing the names first imposed, prove how little writers have advanced in assigning to each its precise limits. Mr. H. C. Watson's pleasant but somewhat caustic remarks in 'Cybele Britannica' on the above species, with two others of more recent creation, are exactly in accordance with my own views of their validity, which have not been hastily assumed, as a few years since I devoted much time and pains to the study of the British species and varieties of this genus inhabiting the south of England. The result of my inquiry, embodied in notes and descriptions too multitudinous for insertion here, even in a condensed form, was only increased perplexity,

and of course augmented scepticism and distrust of the labours of others. Still I am willing to give brevet rank to the five veteran *Cerastiums* specially introduced into these Notes, and to call them species by courtesy, without joining the opprobrious epithet of "book" to them, trusting to time either to confirm their claim to the honour, or to revoke the grace which bestowed it. Yet I shall protest against granting a like degree to any more of the scions or offsets from stocks of such dubious character and deserving, and rejoicing that one of these younger branches has quietly disappeared by a process of self-absorption, devoutly hope that another and only remaining one, still dark green and flourishing where the departed so lately bloomed in new-born dignity, will make its exit from the court of Flora in the same easy and agreeable manner without compulsion, as being too nearly allied, like most, I fear, of the others we are treating of, to that confessedly little-renowned and retiring individual, *C. obscurum* of Chaub., to the paternity of which personage, whoever he may be, it seems under no great obligations for its name or reputation in the vegetable world.

*Cerastium tetrandrum*. On dry pastures, banks, wall-tops and sandy heaths, frequent in the Isle of Wight, and perhaps in the county generally. On Ryde Dover. I believe my plant to be exactly that of Curtis, on a renewed examination of my specimens so named in 1838.

—— *pumilum*. Curt. ? Sandy places rare. Abundant on the sandy fence of the Ferry Boat Inn, opposite Bembridge, Isle of Wight, April, 1842. I cannot now quite answer for the exact correspondence of my plant with the *C. pumilum* of Curtis, as I at that time considered it, what I still think it likely to be, a mere variety of *C. semidecandrum*, but my notes express no doubts of their identity, and I was extremely cautious about coming to conclusions until after repeated careful comparison of the living plants with the best and most authentic descriptions and figures. At that date I was not so much in the habit of preserving specimens of what I looked upon as trivial varieties as I have since been, and therefore I cannot now renew the comparison of my own with Curtis's *pumilum*, but having quoted his figure in 'Flora Londinensis' without a ? after it in my MS. notes, which it was my constant rule to do where the least doubt remained on my mind, I fell pretty well assured of their agreement. It may assist the advocates for retaining this and the remaining forms under their distinctive names, in coming to a conclusion on the subject of our Isle of Wight *C. pumilum*, to add what I considered,

though not without some uncertainty, as a synonym and figures of the island plant. *C. glutinosum*, *Fries*, Nov. Fl. Suec. ed. alt. p. 132? *Reichenb. Iconogr. Bot. ii. t. 181, fig. 315, 316?* (*C. semidecandrum* of that author). In my Ryde specimen of *C. tetrandrum* the membranaceous margins of the sepals vary extremely in breadth, even on the same plant, they are mostly broader on the alternate segments, at one time very wide, at another nearly or quite obsolete. Flowers by far most frequently four-cleft, with four stamens and as many styles, sometimes five-cleft, with five stamens, and four-cleft on the same plant; whilst not unfrequently I find four-cleft flowers with five stamens and only four styles. Certainly the bracts are not scarious in any of my specimens of *C. tetrandrum*, as Mr. J. Woods has well remarked in his tour in Brittany,\* which I presume Mr. Babington means to express by the term "herbaceous." My own impression after much careful investigation is, that *C. tetrandrum* is a dwarf maritime state of *C. semidecandrum*, which last may itself, as Mr. W. Wilson suggests, prove to be a modification of *C. viscosum* (*C. triviale*), as it is difficult to assign a character to the one which is not occasionally assumed by the other. An extremely humble plant of this genus, not an inch high, with four- (rarely five-) cleft flowers, spreading in the form of a cross, grows profusely on our downs and short pastures, which are quite enamelled with it in the spring, and this I have been in the habit of calling, I know not with what propriety, *C. tetrandrum*, though probably quite as near to any of the others we have been speaking of.

*Malva moschata*, add, Common at Appleshaw. Not unfrequent at Selborne.

*Hypericum hirsutum*. Extremely abundant in woods and thickets in various parts of the Isle of Wight and mainland, especially on the chalk.

—— *elodes*, add, Profusely in the boggy parts of Short Heath, at Oakhanger, near Selborne.

*Geranium pratense*, add, Plentifully along the banks of the brook and in damp meadows adjacent betwixt the Priory Farm and Oakhanger, near Selborne, following the winding of the stream for nearly half a mile, and still partially in bloom, September 17th, 1848. Observed in a few other places about Selborne.

*Radiola millegrana*, add, On Short Heath, near Selborne. Wolmer Forest. In cart-ruts on Parley Heath; Mr. Curtis.

\* Hooker's Comp. to Bot. Mag. ii. p. 263.

*Ononis antiquorum*? add, This, which is the *O. spinosa* of Koch, I find abundant in many places along the coast betwixt Emsworth and Portsmouth, and on Hayling Island.

*Trifolium medium*. I searched carefully during two seasons for this species in Dr. Salter's station in Firestone Copse, from which it appears to have vanished completely.

—— *glomeratum*, add, On the bank in Stokes Bay, with *Lotus angustifolius*; Miss G. E. Kilderbee!

*Lathyrus sylvestris*, add, Abundantly near Selborne, and with very narrow leaflets on a steep bank at the west end of Little Dorton (Beech-hanger), not far from the church.

N. B.—*Vicia Bithynica* has been erroneously given as a Hampshire species in Hooker's 'British Flora,' as I learn from Mr. Borrer. It is nevertheless a likely plant to occur, and should be looked out for, both inland and on the coast, along which last *Trifolium maritimum* and *Vicia lutea* may be reasonably expected.

*Potentilla argentea*. In a lane about one mile from Liphook, on the road to Haslemere; Miss Lovell!

*Prunus insititia*. A variety of the bullace of a transparent red or yellow colour grows in a field hedge at Whitewall's Farm, Wellow, Isle of Wight.

—— *Avium*, p. 284. For "red cherry" and "black cherry" read "merry," that being the country name in this and other parts of England for the fruit of the wild cherry (*mérisés, mérisier*, Fr.) or gean tree of Scotland (*guignes, guignier*, Fr.).

[To be continued].

W. A. BROMFIELD.

Eastmount House, Ryde,  
Isle of Wight, October, 1848.

#### ERRATA.

P. 271, line 10 from top, for *gaze* read *gage*.

„ line 26, for *cover* read *our*.

P. 273, line 9 from top, for *mere* read *more*.

P. 274, line 25 from top, for *Widely* read *Widley*.

P. 275, line 11 from top, for *bank-hedges* read *banks*.

P. 276, line 1, for *Kenner* read *Kennerley*.

„ line 7, for *Wrickham* read *Wickham*.

P. 277, last line, for *Ryde Down* read, and where it occurs, *Ryde Dover*.

- P. 281, line 4 from bottom, for *Benbridge* read *Bembridge*.  
 „ line 3 from bottom, for *it is* read *its*.  
 „ line 2 from bottom, for *companions* read *companion*.  
 P. 282, line 2 from top, for *Brightstone* read *Brightstone*.  
 P. 283, line 16 from top, for *keeksies* read *kecksies*.  
 „ line 22 from top, for *formed* read *devised*.  
 P. 284, line 3 from top, for *domesticus* read *domestica*.  
 „ line 25, for *distinguishable* read *undistinguishable*.

BOTANICAL SOCIETY OF LONDON.

*Friday, October 6th, 1848.* — J. Reynolds, Esq., Treasurer, in the chair.

Mr. G. S. Gibson exhibited specimens of *Melilotus arvensis* (*Wallr.*), collected in the neighbourhood of Saffron Walden, Essex, which appear to be an identical species with *M. Petitpierreana* (*Willd.*), except that the latter was founded on a white-flowered variety, according to Koch's Synopsis, although other German botanists label the yellow-flowered states by the name of *Petitpierreana*. Mr. Gibson explained the distinctions between the new species and *M. officinalis*, with which the yellow flowers might cause it to be confused, but in technical characters it is otherwise more allied to *M. alba* (*Des.*), and from which the white-flowered variety of *M. Petitpierreana* will with difficulty be distinguished if it should be found in England.

Mr. Thomas Moore communicated a paper, being "Notes on two varieties of *Pteris aquilina*."—*G. E. D.*

*On the Occurrence of Euphorbia salicifolia as a Naturalized Plant in Forfarshire.* By GEORGE LAWSON, Esq.

In introducing to the notice of your readers a new candidate for admission into our list of *naturalized species*, I am aware that I may draw upon myself the invective denunciations of the exclusive party, and I therefore beg leave to express a hope that we may have as little ill humour on the subject as possible, however great may be the difference of opinion that may exist thereon. Having expressed this hope, allow me next to mention that *Euphorbia salicifolia* is naturalized with us here, although it is not so in botanical books; I say

*naturalized*, and wish to be understood that I do not mean imperfectly naturalized nor temporarily so. The station for the Euphorbia is in "Mains Flowery Den," about two miles north from Dundee, in Forfarshire, and any visitor will easily find the plant on the north bank of the Den, nearly opposite to the Castle, and on the east side of the old burying-ground. As a naturalized plant it has been known at this station by the botanists of the district from time immemorial,\* and while we may look to its proximity to the old castle ruins as a conjectural proof of its not being indigenous, we may at the same time, with some degree of safety, conjecture that, if the histories of both the castle and the Euphorbia are not coeval with one another, the latter has at least dwelt in its present place since those days, long gone by, when resounded, with sounds of mirth and music, the desolate walls that now softly echo the gentle love-coo of the dove. And if we thus consider the naturalization of the plant to have taken place at a period so remote, and farther, the undeniable facts that it is now firmly established, plentiful, and is in a thriving condition, and depending in no way upon mankind or unnatural circumstances for a continuance of its existence, then we have a *plena probationis* of its right of record as a naturalized species.

It will be well known to those acquainted with the Den of Mains (through books or otherwise) that it contains a host of plants that cannot be considered as natives, nor in some cases, indeed, as quite naturalized. Many of these are, I believe, the remains of a garden that once existed in the Den; but the Euphorbia had its existence, I am informed creditably, prior to that garden; and although *Hieracium aurantiacum* and some others have disappeared from the place, and *Viola odorata*, with, perhaps, one or two *et cæteras* of imperfect naturalization, appear on the eve of doing so, yet there is not the slightest doubt of the permanency of the Euphorbia; nor do I fear much the rural improvements which have been begun upon the Den (one of which, by the way, is the *attempted* (!) unmerciful exclusion of vasculum-bearers and other visitors); for the Euphorbia bids fair to withstand a good deal of the ill-usage and exterminatory efforts of the rightful owner of the soil (should these be attempted), in like manner as Dundee naturalists bid defiance to the never-ending array of "trespass" tickets and built-up bye-ways that hem in the smoke cloud of "bonnie Dundee."

GEORGE LAWSON.

Stirling, October 9, 1848.

\* One botanical friend of mine (Mr. Palmer) has himself known it as abundant as it now is for forty years.

## THE DUNDEE NATURALISTS' ASSOCIATION.

*Watt Institution Buildings, Dundee, September 5, 1848.*—Mr. Lawson, President, in the chair.

The chairman produced several specimens showing diseases in wheat and rye, which had been sent him by Mr. E. J. Lance, of Bagshot, Surrey; and made some remarks upon them. He likewise laid upon the table a specimen of a white-flowered variety of *Erica cinerea*, gathered in Fifeshire by Miss Jessie Jackson.

A communication from Mr. Wyllie was read, mentioning that *Convolvulus arvensis* is not wholly exterminated from the Constitution-road, Dundee, as stated by Mr. Gardiner in his Forfarshire Flora. A fresh specimen gathered at the station referred to accompanied the communication. The President stated that although this plant is somewhat rare in the vicinity of Dundee, he had pleasure in communicating an unrecorded station, viz., by the side of the Arbroath-road, about four miles east from Dundee, where he found it this season in some abundance and growing luxuriantly.

A letter from Mr. Anderson to the President was read, communicating a new station in Forfarshire for the very interesting *Linnæa borealis*. The station is thus described by Mr. Anderson:—"Hill of Strathcathro: a little to the south of a cart-road that runs along the top of the hill, and bearing due south of the Strathcathro House, growing among roots of birch and Scotch fir, and within what seems to have been a square enclosure at one time, covering a space about twelve yards in diameter."

A paper by Mr. Kerr was read, on "Discovery of Fossil Fish and Shells, &c., in the clay-pits at Carcary, on the estate of Southesk, March, 1848."

Mr. Flight presented a specimen of *Knautia arvensis* in a state of luxuriance, wherein large *leaves* were produced from the flower-head.

The President gave an account of botanical rambles in Forfarshire and Kincardineshire.

Mr. Ogilvie presented specimens of the following Fungi new to the county:—

Two species of *Sphæronema*, "referred by Fries to *Sphæria herbarum* and *S. complanata*, but a distinct genus."—*Berkely*.

*Sphæria conica*. On the nettle, Lawhill.

*Cyphella cupula*. On dead stems of the nettle, Baldovan.

*Dindryphium curtum*. On dead stems of the *Senecio Jacobæa*,



Baldovan. "Very interesting, the genus new to Great Britain."—  
Berk.

*Sphæria lirella*. On dead stems of *Pteris aquilina*, Sidlaw hills.

*Sphæria* sp. "Undescribed with very pretty fructification."—  
Berk. On dead stems of an umbelliferous plant.

Mr. Ogilvie likewise noticed a new station for *Sclerotium durum*, which he found on dead stems of *Geranium phœum*, Den of Mains. He also mentioned a new station for *Dicranum cerviculatum*, viz., Peat bog, Sidlaw hills. The only previous authority for this moss in the county is that of Don, who mentions no locality.

Mr. Jackson exhibited two fine specimens of the common otter, which had been recently taken at the stream of Dighty, a few miles from Dundee.

A packet of specimens was announced from Mr. Anderson, of Brechin.

Mr. D. Campbell, Fortingale, Perthshire, was elected a fellow.—  
G. L.

October 3rd.—The annual meeting of this Association was held this evening, Mr. Ogilvie in the chair.

The Secretary read the report of the Society's proceedings for the past year, after which the following office-bearers were elected, viz., Mr. W. M. Ogilvie, President, Mr. John Flight, Secretary, and Mr. David Jackson, Treasurer.

A communication was then read from Mr. George Lawson, being notes of various Fungi, found by him in Forfarshire, and which are new to the county. The following are the species enumerated by Mr. L., viz. :—

*Nidularia campanulata*. In flower-pot, Crescent Nursery, Dundee.

*Uredo apiculata*. On leaves of *Carlina vulgaris*, near the Red Head, east coast.

*Hysterium melaleucum*. On withered leaves of *Vaccinium Vitis-idaea*, Sidlaw Hills.

*Puccinia Viola*. On leaves of *Viola canina*, Sidlaw.

*Rhytisma Urticæ*. On dead stems of *Urtica dioica*, near Mains Castle.

*Botrytis parasitica*, var. ? On flower-stem of *Spiræa ulmaria*, Den of Mains.

*Corticium craterium*. On dead stems of a *Ribes*, Den of Mains.

*Tremella virescens*. On dead stems of larch, Sidlaw Hills.

*Stictis radiata*. On dead branches of *Sarothamnus scoparius*, Sidlaw Hills.

*Phoma*, nova species? On dead stems of *Sarothamnus scoparius*, Sidlaw Hills.

*Rhytisma Andromedæ*. On leaves of *Andromeda polifolia*, in gardens.

*Merulius lachrymans*. In houses, various parts of Dundee.

*Lasiobotrys Linnæa*. Found on specimens of *Linnæa borealis*, received from Mr. Anderson, and gathered by him on the Hill of Strathcathro.

Most of the names had been authenticated by the Rev. M. J. Berkeley, and specimens were exhibited from Mr. Lawson of the various species mentioned.

A beautiful specimen of the death's-head hawk-moth (*Sphinx Atropos*) was exhibited from Mr. Jackson, captured by him in the neighbourhood.

A vote of thanks was then tendered to the retiring office-bearers, and the meeting separated.—*W. M. O.*

*Notes of a cursory Examination of the Botany of Colvend, Kircudbrightshire, in September, 1848.* By PETER GRAY, Esq.

THE middle of September is not the most suitable period of the year for botanical investigation; but one thing after another delayed so long, an excursion I had meditated for June, or July at farthest, that, ere the requisite furlough could be obtained,

“The autumn sun was shining,  
Grey mists were on the hill,  
A russet tint was on the leaves;”

and though, to continue the quotation, flowers certainly were “blowing still,” so many had faded from the ken of the most Argus-eyed collector, that, had it not been for the kind assistance of the respected parish minister,—to whom I am indebted for the greater portion of the list which I append, and who to skill in and love for the “science of beauty” adds the utmost expertness and success in the taxidermist’s difficult art,—I should have departed as wise almost as I went regarding the flora of a district, which, from its situation and physical characteristics, as well as from what I had ascertained during previous short visits and partial explorations, I expected to prove, if not peculiarly rich in the scarcer vegetable productions, at all events differing

widely in those from the neighbouring red sandstone basin of Dumfries. And Mr. Fraser, who knows the ground better, and possesses much greater experience in such matters than I can pretend to, is of opinion that it will yet reward his industry with several rare species; *Primula farinosa*, for example, which grows on the opposite side of Solway, within sight of his parish.

The parish of Colvend extends along the south-eastern coast of the Stewartry of Kirkcudbright, nearly from the point of Southernness to the estuary of the river Urr. It is bounded on the north and north-west by the group of granitic hills which occupies, with the exception of a narrow border along the bed of the Nith and the shore of the frith that receives its waters, the entire south-western corner of Kirkcudbrightshire. These hills are generally rounded in the centre, or approach in form to flattened domes, rising at one point to the height of 610 yards, and again appearing to the west of the Urr for a short distance. The granite of which they are composed "is usually of the variety termed sienite, a compound of gray quartz, grayish white or rarely red felspar and green hornblende, often linearly disposed, with black or brownish mica not unfrequently added to these ingredients, and in many stations passing into the regular granite."

Along the shore the argillaceous strata so generally diffused over the whole south of Scotland show themselves in a belt of greywacke, narrowing as we advance westward, and offering a more varied and interesting vegetation. A line a little to the northward the parish road may be taken as the boundary between the primary and transition rocks. A short way to the east of where the water of Southwick flows upon the sand, the beach, previously gently sloping to the tide, becomes precipitous, the abraded hills which now rise along the shore and extend westward far as the eye can reach, presenting to the sea precipitous cliffs, ranging from 30 to 300 feet in perpendicular height. Around Douglas Hall or Sandyhills Bay, a gap in the "heughs," as the cliffs are locally designated, is occupied by numerous sand-hills, perforated everywhere by rabbit and hornet-burrows, and bound together like the Dutch dykes by the tenacious roots of a thick turf of *Ammophila arundinacea*, glinting in its barer places with the pretty flowers of *Erodium cicutarium*. *Ruppia maritima* grows abundantly in the saltwater pools nearer the sea; and, on the road to the right, a single patch of *Allosorus crispus*, in the chinks of a dry stone dyke, which I did not disturb. Proceeding in a westerly direction beneath the heughs, which is practicable at low water, you find their shelving faces decked in many parts with

*Crithmum maritimum*, and the dark green fronds of the elegant *Asplenium marinum*, although both, but especially the former, are in most cases provokingly out of reach; particularly about the mouth of the Piper's Cove, one of the lions of the shore, the name of which, according to a veracious legend, is derived from the adventure of a musician, whose progress (although he seems to have been unable to find his way back, or to have been so well treated where he got at last that he remained) was traced by the sound of his instrument some five miles across the country, and finally lost under the goodwife of Barnbarroch's hearthstone. The cove is in reality an ancient copper working, this metal being found all along the coast in veins which penetrate the greywacke, and the miners having taken advantage, in their labours, of a natural fissure in the rock as far as it went. A little farther, where the waves have worn an arch in the opposing rocky rampart, the cliffs attain their maximum height, and their picturesque appearance here is greatly enhanced by the presence of one or two cream-coloured goats, the property of a neighbouring farmer, but of

"The wild flock that never needs a fold,"

reposing midway upon a narrow ledge, poising themselves on a mere point of rock at a dizzy height, or, in following one another with the most perfect *nonchalance* across or adown precipices, performing feats beyond the ability of the most agile mountebank in the world. Below Port Ling there is another break in the rock-bound coast. Here I found, growing among heaps of boulders, chiefly granitic, *Rubus cæsius* and *R. suberectus*, *Geranium sanguineum*, *Solidago Virgaurea*, &c., among which and side by side with the dark shining fruit of the blackthorn, and of *Rosa spinosissima*, both of a large size, hung festoons of honeysuckle in flower. Both the brambles are, I think, pretty common between the cliffs and the sea all along the shore westward from this point, especially *R. cæsius*. In boggy ground, here, also, adorned with the contrasted blue and white of *Scabiosa succisa* and *Parnassia palustris*, I observed plenty of the foliage of *Anagallis tenella*, not a common Scottish plant, but far from scarce both on this shore and that of the estuary of the Nith, with a good few plants of *Lycopodium selaginoides*. Beyond Port Ling, for some distance, the rocks become more distinctly granular, and at Blackneuk have all the appearance of a coarse sandstone, containing fragments of a more compact structure, and seamed in such a way both in a horizontal direction and vertically, that at a little distance they look like

some huge remains of Cyclopean masonry. Here large patches of *Rosa spinosissima* occur, with *Astragalus glycyphylus*, *Carlina vulgaris*, *Gentiana campestris*, *Sedum anglicum* and acre, and *Scutellaria galericulata*; and close upon the sea I found on one occasion *Scolopendrium vulgare*, *Asplenium marinum*, and *A. Adiantum-nigrum*, one patch of each, growing very sociably together on the ground, sheltered from the salt spray under a great rock. On the cliffs at Port o'Warren, on this and a former occasion, I gathered *Raphanus maritimus* and *Carex remota*, and on the beach *Glaucium luteum*, not a scarce plant on this coast. The hill above furnishes a magnificent prospect. To the south you have the boundless ocean, along which, from St. Bees Head to where the symmetrical peaks of Mona appear in the blue distance,

"Set like a sapphire in the casing sea,"

fleets of merchantmen are occasionally visible fringing the horizon. On the left the eye takes in at a sweep a fine panorama of the English coast, from St. Bees to Bowness, presenting a rich and cultivated seaboard, rising from the wave-brink and the bright towns that border it with gentle undulations upward to the lofty Skiddaw, broad Saddleback, and the rest of the massive group which forms the back-bone of "rocky Cumberland," exhibiting, when the sun brings out their iron forms in relief, fearful precipices on their scarped sides one almost shudders to look upon, although diminished by distance to the dimensions of mountains of faery; again, on the Scottish side, across the narrowing frith, the expanse of sand that constitutes the point of Southernness, with its tall white lighthouse; next a rich carse land hedged in from the sea breeze by belted trees; then the brown and rugged cliffs, sweeping past to Hestan and the Airds of Balcary, and chafed by the restless surge, beyond which, and where sunshine and shadow are chasing each other over a smoother sea, but diversified by breakers margining treacherous sand-banks, flocks of white-bosomed sea-fowl are scattered like stars in a lower firmament; and, turning, your view is bounded behind by the granite hills from Criffel to Bengairn, wild and bare, but relieved from monotony by cottage, hamlet, and silent tarn. Near the farm-house of Port Ling I met with several plants of *Sanguisorba officinalis*, of a variety apparently analogous to that of *Plantago lanceolata* with globular heads. The majority of these had only one head of flowers, and that much rounder than usual. The coast hence to the Urr, besides most of the plants

already mentioned, furnishes abundance of *Allium vineale*, with *Verbascum Thapsus* and *Habenaria albida* about Glenstocking.

From Castlehill, upon the Bay of Urr, where the trenches of an ancient fortification are still apparent, on your way up the river Urr, you meet with, besides many of the more ordinary littoral plants, *Scheenus nigricans* and *Blysmus rufus*, between Glenluffin and Saltflats, and *Zostera marina* betwixt the latter and Roughisle, an appropriately named islet in the estuary. Passing on betwixt the Mark and Moat hills, the latter close to the shore and surmounted by some slight remains of one of those curious and very ancient vitrified forts, the execution of which the Scottish peasantry usually ascribe either to Auld Michael, the Pechts, or to one older and more knowing than either, the path, now winding fairly among the granite, conducts to a point overlooking a piece of the finest scenery in the entire south of Scotland, comprising the embouchure of the Urr, about three quarters of a mile in breadth, above which you stand at just the proper height, with Roughisle, and, on the opposite side a peninsula of Almoness point, couching as if to guard the entrance to the estuary; beyond, the Isle of Hestan standing out in the firth; the estuary itself, irregular in outline, indented with baylets and jutting headlands, like a Highland loch; the hills on either side, bold and precipitous, on the western shore remarkably so, wooded to the water's edge, and rising to a great height in Screeel and the still loftier Bengairn. I saw it under very favourable circumstances. It was one of the finest and most pellucid days in autumn; above, massive but almost transparent cumuli were reposing in a sky of the deepest azure; the sun was bright and warm, the air fresh and balmy; below, flocks of noisy gulls cooled their stilts at a picnic by

"The bright wide coming stream  
Of Solway's tide enlarging;"

the handsome peacock butterfly, the glowing *Lycæna*, and *Hipparchia Mægaris* of more sober plumage, flaunted and flickered through the surrounding wilderness of red heather and golden whin; beetles dashed past in glancing mail of steelly blue; and

"Wild bees murmured in their mirth  
So pleasantly it seemed the earth  
A jubilee was keeping."

About a mile and a half farther up the river, Colvend is bounded by the adjoining parish of Urr.

Down the middle of the parish there extends a chain of five lochs, the most westerly of which drains its surplus waters into the Urr, while the Solway receives those of the other four. On the margin of the lowest of these, Barnhourie Loch, I found abundance of *Hypericum elodes*, and *Carum verticillatum* in its neighbourhood. The one upon the road-side near the manse, styled the Manse or White Loch, the latter name applied, I presume, on the *lucus a non lucendo* principle, as its waters are black as night and its bed peat, furnishes *Typha angustifolia* and *Lobelia Dortmanna*, the latter much taller and stronger than I ever remember to have seen it; and on its margin *Osmunda regalis* and *Lysimachia vulgaris*, the latter rare in Scotland, and the former a grateful sight anywhere. The next is a remarkably handsome sheet of water, of irregular outline and possessing a pretty little wooded island, but botanically barren. On the hill which overlooks it and from which it is best seen, the only remarkable thing I observed was *Calluna vulgaris*, *fl. alb.* The other lochs I have never examined.

The following is a list of forty or fifty of the rarer flowering plants and ferns of the parish, for most of the stations for which I am indebted to the source acknowledged in my opening observations.

*Anagallis tenella.* All along the marshy ground bordering the sea-coast, and in many bogs inland. Abundant.

——— *arvensis*, var. *cerulea.* Came up in great abundance in a corn-field belonging to Mark S. Stewart, Esq., of Southwick, in the year 1848.

*Agraphis nutans*, *fl. alb.* On the glebe, Colvend, in many places.

*Allosorus crispus.* In a dyke opposite Sandyhills—one patch.

*Allium vineale.* Rocks beyond Port.o'Warren and Glenstocking. Abundant, especially in the latter locality.

*Asplenium marinum.* Rocks by the coast. Plentiful.

*Astragalus glycyphyllus.* Sea-side, between Boreland and Barcloy Hill; Blackneuk. Plentiful.

*Blysmus rufus.* Banks of Urr, between Castlehill and Glenluffin.

*Botrychium Lunaria.* Near Douglas Hall, and in many other places. Abundant.

*Carlina vulgaris.* Dry hills. Not very plentiful.

*Convolvulus sepium.* Road-side, farm of Millbank.

*Corydalis claviculata.* In many places.

*Crithmum maritimum.* Rocks by the sea-side from Douglas Hall to Barcloy Hill.

*Carex remota.* Near Port o'Warren.

- Calluna vulgaris*, fl. alb. Hill above Smithland ; Castlehill.  
*Carex verticillatum*. About Barnhourie Loch.  
*Drosera longifolia*. Margin of Anchenshien Loch. Plentiful.  
*Equisetum hyemale*. Near Barnbarroch School.  
*Eupatorium Cannabinum*. Heugh of Laggan; Port Ling. Very plentiful.  
*Glaucium luteum*. Port o'Warren, Saltflats, and other places along the coast. Rather scarce.  
*Genista Anglica*. Very common.  
*Gentiana campestris*. Hills on the coast. Plentiful.  
*Hypericum elodes*. In various marshes and ditches in the parish.  
 — *humifusum*. Common.  
*Juncus maritimus*. Mouth of the Urr.  
*Jasione montana*, fl. alb. Near Clonyard.  
*Lobelia Dortmanna*. Lochs. Abundant.  
*Lychnis viscaria*. Rocks and cliffs near Port o'Warren.  
*Lycopodium selaginoides*. Near Port Ling.  
*Leonorus cardiaca*. Lochhouse. Not very plentiful.  
*Lithospermum officinale*. Road-side nearly opposite Murfry, but nearer Southwick.  
*Lysimachia vulgaris*. Shore of the White Loch and Barnhourie meadows. Not scarce.  
*Meum athamanticum*. Plentiful.  
*Nymphæa alba*. Lochs. Abundant.  
*Nuphar lutea*. do. do.  
*Ornithopus perpusillus*. In the greatest abundance in many fields, and by the road-sides.  
*Osmunda regalis*. By the margin of the Manse or White Loch, and in a bog on the farm of Mark. Far from plentiful in either station.  
*Parnassia palustris*. Beach near Port Ling. Abundant.  
*Primula veris*, *P. elatior*. Douglas Hall Bay.  
*Rosa spinosissima*. Douglas Hall, Blackneuk, and other places along the coast. Plentiful.  
*Rubus suberectus*. Near Port Ling, &c.  
 — *cæsius*. do.  
*Rhynchospora alba*. Bog opposite Auchenlosh.  
*Raphanus maritimus*. Port o'Warren. Sparingly.  
*Ruppia maritima*. Near Sandyhills.  
*Samolus Valerandi*. Near Glenstocking.  
*Scutellaria galericulata*. Blackneuk, beach near Glenluffin, and by margin of Manse Loch. Scarce.



*Schœnus nigricans*. Sea-side near Glenluffin, abundant; and in different stations along to the village of Scaur.

*Sedum Anglicum*. Common.

—— *acre*. Blackneuk. Sparingly.

*Salix pentandra*. By the margin of the Manse Loch, and by the side of a ditch opposite to Jorr.

*Typha angustifolia*. Manse Loch. Abundant.

*Vaccinium oxycoccus*. In many bogs, and in considerable abundance.

*Viola lutea*. Hills near Barnbarroch.

I possess a specimen of *Lycopsis arvensis*, received from a friend and labelled Colvend. It does not occur in this neighbourhood.

Of the plants enumerated above, one or two, as *Viola lutea*, *Lithospermum officinale*, and *Leonurus cardiaca*, were as unexpected by me in Colvend as they are unknown in the vale of Dumfries. Neither have we *Schœnus nigricans*, *Osmunda regalis*, the two Rubi, nor several others; and the relative proportions of other and more frequent forms not specially noticed is not less striking, and not altogether, I think, dependant on the proximity of the sea. In conclusion, I may mention that although I gathered a considerable number of Algæ, I had not the fortune to find any excepting those common to all shores, such as, of course, the Fuci, *Halidrys siliquosa*, both varieties, *Furcellaria fastigiata*, *Delesseria sanguinea*, *D. alata*, &c.

PETER GRAY.

Queen Street, Dumfries,

October 10, 1848.

*Occurrence of Filago gallica and other Plants at Berechurch, Essex.*

By THOMAS BENTALL, Esq.

ON the 18th instant, Mr. Varenne and myself accompanied Mr. Forster on an excursion to the village of Berechurch, in this county, for the purpose of searching for *Filago gallica*. The plant I believe was first observed in this locality about six years ago by Mr. Garnons, and last autumn it was gathered by Mr. Varenne, and by him specimens were communicated to the Botanical Society of London. On reaching the first field where it was known to occur we were fortunate enough to find a considerable number of very fine specimens, and subsequently observed it growing plentifully in two other dry sandy corn-fields about half a mile distant. *Filago apiculata* and *Jussæi*

were both growing with it, and I may mention as a curious fact that in one of the fields which we examined are to be found all the known British species of *Filago*.

Another interesting plant of the neighbourhood, and one for which we have no other station in the county as far as I am aware, is *Galeopsis ochroleuca*; it was observed in some abundance last year by Mr. Varenne, in one of the fields where *Filago gallica* occurs, and had we visited the spot earlier in the season we should in all probability have met with it again.

Our stay at the place being limited to about two hours, we were obliged to confine ourselves almost entirely to the grand object of our visit; a few other things, however, were met with, perhaps not altogether unworthy of notice; amongst these I may mention *Gastridium lendigerum*, *Anthemis arvensis*, *Silene anglica*, and a very remarkable looking *Rubus*, apparently allied to *R. cordifolius* (*W. & N.*), having a naked stem, ternate leaves, and a long panicle.

THOMAS BENTALL.

Halstead, Essex, October 19, 1848.

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*On the Finding of Ornithogalum umbellatum, Linn., near Worcester.*

By GEORGE REECE, Esq.

I HAD been aware for some years of a bulbous-rooted plant growing on Pitchcrop Ham, near this city, but could not be certain of the species, only seeing it in an immature state, for when the mowing grass was up I always lost sight of it, and after several ineffectual attempts at watching after it through Flora's season, I this year adopted the process of obtaining bearings upon the precise spot from different objects, and stepping the distance from certain points and noting it down, and thus I became successful at the flowering season in ascertaining the roots to belong to what is considered a very rare species, viz., *Ornithogalum umbellatum*, *Linn.*

I may observe that the *Ornithogalum umbellatum* is a most difficult plant to find at its flowering season, when its petals, which are striped with green exteriorly, are closed, which seems to depend much upon the state of the atmosphere amid the mowing grass which now has so much outgrown its more humble neighbour, particularly if a little wind be stirring so as to give motion to the surrounding herbage; for this season, although I was successful in finding it, I could not distinguish it when walking in a direct line towards it until, as I may

say, I came close upon it. Yea, when its snow-white starry petals are fully expanded to meet the rays of the cheering sun, the distance of a few short yards is sufficient to secure it from the searching eyes of the exploring botanist, at which time it is a most pleasing object, well calculated, when found, to arrest our zeal whilst we stop to contemplate its delicate whiteness ere we destroy the same by stooping to gather it for our herbarium.

Not so in spring; it is then quite a conspicuous object in localities where it grows, being at this period of the year much the tallest and of a very different green from the surrounding grass, when a kind of trigonometrical survey should be made, and bearings of the precise spot with some particular objects obtained and the exact distance therefrom noted down, which would not only prevent disappointment at the time for collecting it, but also injury to the mowing grass in searching for it; and doubtless such a process may be applicable to the finding of other plants of humble growth which are conspicuous in the spring, when they are little thought of, but are hid from our longing eyes and itching fingers by the over-growth of surrounding objects as the summer advances, when they are eagerly sought after but cannot be found from the causes before enumerated, which the above observations may in some measure, it is hoped, tend to obviate.

GEORGE REECE.

Worcester, October, 1848.

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*Remarks on the "Rubus leucostachys" of Lindley, Leighton (Flor. Shrops.), and Lees, and "Rubus nitidus" of Babington and Leighton's Fasciculus.* By EDWIN LEES, Esq., F.L.S.

THE Rev. W. A. Leighton, in his elucidatory 'Notes on Shropshire Rubi,' in the 'Phytologist,' states, under *R. leucostachys* (Phytol. iii. 175), that "*R. leucostachys* of Lees in Steele's Hand-Book is, according to specimens from Mr. Lees, identical with *R. nitidus* of Bab. Syn. and the 'Fasciculus of Shropshire Rubi.'" With a suggestive modesty which I wish all botanical writers would try to imitate, as well as come up to his investigating ardour, my untiring friend does not say with bramble-like asperity that I have *blundered* in the matter, but implies that my conclusions are probably wrong, as being different from those of Mr. Babington.

I have almost come to the resolution to take no authority in bota-

nical matters save that of observation, for it would appear that a Professor's opinion, even on points he has made his peculiar study, are still liable to be demurred to, and even the dicta of Esenbeck, as stated in the 'Flora of Shropshire,' seem now quite disregarded. I feel obliged, then, to offer an explanation as to "*Rubus leucostachys*," and my connexion with it. When, twelve years ago, I was brushing among thickets of perplexity, Mr. Leighton most kindly forwarded to me a series of duplicate specimens of *Rubi* that had passed under the scrutinizing eye of Dr. Lindley, and been named by that eminent botanist after his own nomenclature in the then recently published 'Synopsis of the British Flora.' Among these specimens, which I cherished as authorities, was one of "*Rubus leucostachys*," which having identified with the growing plant, and recognized it as the form meant by Lindley in his Synopsis, I have ever since called by that name, and so distinguished it in Dr. Steele's 'Hand-Book of Field Botany.' Consequently the *Rubus* in question is the "*leucostachys*" of Dr. Lindley and myself, and substantially also that of the 'Flora of Shropshire,' though it appears that Mr. Leighton himself had added in his herbarium a specimen of *vestitus*, *W. & N.*, to the two named by Lindley as *leucostachys*. His description, indeed, must be taken as applying to Dr. Lindley's plant, as he expressly says, "Determined by Professor Lindley." To this bramble both Mr. Babington and Mr. Leighton *now* apply the name of *nitidus*, and here is the question to try.

Having all the same plant in view, it may be asked, was Dr. Lindley right in his primary assignation of the name *leucostachys* to it, or not? To answer this question throws us back upon Sir J. E. Smith, who first published *R. leucostachys* as a species, but deriving the name from M. Schleicher, a Swiss botanist, who sent him a specimen so labelled. I am not aware that Schleicher himself ever published a description of his plant, and hence Sir J. E. Smith in the 'English Flora' is the first authority for the name, and in the Smithian herbarium are now three specimens named *leucostachys*, which on a recent examination I find are all identical with the *R. vestitus* of *W. & N.*, nor do I see any material difference between them. Neither of these, however, appears to be the identical specimen of Schleicher, but a *Rubus*, sent from Henfield by Mr. Borrer, is ticketed "*R. leucostachys* of Schleicher," and this is certainly the common form of *vestitus*. It should be observed that when Smith published his 'English Flora,' the authors of '*Rubi Germanici*' had not proceeded to the *hairy* division of the brambles, as their book came out in fasciculi. They

seem to have been unaware of the plant of Schleicher and Smith on their parts, and no "*leucostachys*" occurs even as a synonym in the German work. Mr. Borrer next appears upon the scene, and in Eng. Bot. Supp. 2631, under the name *leucostachys*, really figures and describes *R. vestitus* of the German Rubi. In the third edition of Hooker's 'British Flora,' where the brambles are ably marshalled by Mr. Borrer, he describes *leucostachys* as from Eng. Bot. Supp., but gives a var.  $\beta$ . which he identifies with Dr. Lindley's *diversifolius*. No reference is made to the German Rubi by Mr. Borrer as to their *vestitus*. Professor Lindley having in the first edition of his Synopsis described both *leucostachys* and *diversifolius*, but no *vestitus*, now in his second edition continues them, and having certainly (as shown by Leighton's specimens and my own) our present bramble in view as *leucostachys*, blames Mr. Borrer for uniting *diversifolius* with it, and says that the latter "is surely a hundred times more different than *leucostachys* from *fruticosus*." This renders it clear that Lindley's *leucostachys* was no variety of *vestitus*.

Dr. Bell Salter (Phytol. ii. 105) has the merit of clearing up the obscurity as far as *R. diversifolius* of Lindley is concerned, by showing that Mr. Borrer's specimen of it, "had from Dr. Lindley's own plant in the Hort. Soc. Gardens," is truly *R. vestitus*. But Dr. Bell Salter makes no allusion to Lindley's "*leucostachys*," as being different to the *leucostachys* he himself had in view as "one of the commonest species about Selborne." It is also remarkable, if his "*nitidus*" be really the same as Lindley's "*leucostachys*," the plant now under review, that he lauds Dr. Lindley's description of *nitidus* as applicable to it in his first edition, but says in his second "he confounds it with *R. plicatus* under the misnomer of *R. affinis*." This seems very confusing, and it is scarcely possible that the same plant should be mentioned by Lindley under two different names. In fact, he refers the plant of which Leighton and myself have specimens as "the jagged-leaved form of *R. fruticosus*," and compares it on this account with the similar character of *rudis*, which is a very just comparison. These jagged leaflets, a character generally perceptible, are mentioned by Leighton in the Fl. Shrops., but are not alluded to in Dr. Bell Salter's description of his *nitidus*. I have ascertained from an inspection of the Smithian herbarium, that the *R. plicatus* of 'English Flora,' "common in hedges in Shropshire," and sent from thence by Mr. Williams, is really *this species*, which Mr. Leighton seems not to have been aware of; and in his description Sir J. E. Smith very correctly notices the leaflets as "acute or pointed, coriaceous, more or

less *plaited towards the margin*, strongly and unequally serrated, sometimes *jagged*; their under surface hoary and finely downy, but not white or cottony, strongly ribbed, with many fine, transverse, parallel, connecting veins." So that in this singular misapprehension of a common bramble, Smith is blamed by Lindley and Dr. Bell Salter as having described *R. nitidus* from wrong specimens; while if Mr. Babington be now correct as to *nitidus*, Smith had really described it under the name of *plicatus*! My own impression is, that Mr. Babington and Dr. Bell Salter are mistaken in their designation *now*, as Smith and Lindley have been before; and if we are to rely upon Esenbeck, his *R. nitidus* is, after all, but a variety of *plicatus*, which I really believe is the case. Acting, then, upon this belief, I will now proceed to a confirmation of the view I have taken.

The *nitidus* of Weihe and Nees in the Rub. Germ. is placed by them in their "Divisio prima," having the barren stem quite *smooth*—"caule folii feré glabro," and it is evident they intend a bramble nearly related to *R. suberectus*, for they refer to Anderson's plant in the Linn. Trans., as well as the plate of *R. suberectus* in Eng. Bot. 2527. This plate could surely never be said to represent the bramble I have in view. They reiterate, too, in their general and particular description of *R. nitidus*, that the barren stem is *smooth*. Now the plant described by Dr. Lindley and myself under the name of *leucostachys* is at once cut adrift from *nitidus* by its *pilose* stem. Lindley has placed it in a division with the stems "distinctly downy or hairy," and describes the panicle as "very long, leafy, hairy." So I find the shoot of the year invariably clothed with scattered hairs, and *closely hairy at the base*. And here I would remark, that in doubtful cases the *base* of the barren stem should be examined, as towards the extremity of the shoot, even in hairy brambles, the pilosity often disappears; but in a true hairy or pilose bramble I have invariably found its stem *much more hairy at the base*, while in smooth-stemmed *Rubi* it continues smooth to the base, or in cæsious ones, more bloomy still below. The figure of *R. nitidus* in Rub. Germ. is assuredly very unlike the bramble I have in view, and sent to Mr. Leighton, and this Mr. Babington admits when allocating his plant (erroneously, as I conceive) in the *suberect* group. "The panicle is here considerably different from that of all the preceding species. It is much more compound, irregular, and often rather close, nor do any of our specimens quite accord with the figure in Rub. Germ. of this part." My own opinion decidedly is, that *no figure* in the Rub. Germ. distinctly exhibits the bramble before us; but in some points the description of

*R. pubescens* seems to agree with it, especially where it is remarked of the "*caules florigeri*,"—"in inferiori parte pilosi, intra paniculam vero tomentosi." The leaflets, too, are said to be "*ovato-oblonga*," and the "*marginē sub-crispa*" is a remarkable character of agreement, but as the figure fails, and specimens are wanting, no certainty can exist as to the plants entirely coinciding, and most probably they do not.

In this extremity, seeing that the plant before us has been always wrongly referred (for I cannot recognize it as *nitidus*), and that it is at any rate uncertain whether characterized at all in the '*Rubi Germanici*,' I venture to propose a name and description that shall at once decide the matter, and leave nothing to doubt. As Professor Lindley has been much mixed up with British brambles, yet has hitherto escaped commemoration among them, and as this one in particular was described by him in his Synopsis, though with a wrong appellation, which I followed, it may I think properly bear his name, with the following diagnosis.\*

Its locality will be with the arching and rooting *Rubi*, and most correctly, perhaps, the last in my Sub.-div. iii. *RUBI VILLOSI*,—"Stem angular, arching, closely hairy, with occasional setæ. Rachis very hairy."

*R. Lindleianus*. (Lindley's plaited-leaved bramble). Stem angular, closely hairy at the base, clothed with scattered, unequal hairs above; prickles hairy, straight, with long, pale points, rather crowded, but confined to the angles; leaves 5-nate on hairy and densely prickly petioles, with appressed hairs on the upper surface, canescent and pubescent beneath, leaflets all stalked, broadly elliptical, sharply serrate or jagged, crisp and plaited at the edges, cuspidate; rachis almost smooth at the base, hairy above; panicle long, densely hairy, with numerous spreading, cymose branches, very crowded and divaricated at the top, and leafy nearly to the summit; peduncles densely hairy, closely armed with long, pale prickles; calyx shaggy, its sepals more or less prickly, with glands hidden in the dense pubescence.

No figure can be indubitably referred to as representing this species.

\* Before any one takes exception at this proceeding of mine, I beg him first carefully to compare my description, taken from the living plant, with that of *Rubus nitidus* in the *Rub. Germ.*, p. 20, combined with the reference to the figure of *R. suberectus* in *Eng. Bot.*, as representing *their* plant, and the assertion of Esenbeck that *nitidus* is but a variety of *plicatus*. Let my plant, too, be compared with their figure, t. iv.

*R. plicatus*, *Smith, Eng. Flor.* ii. 401 (certainly not *plicatus* of W. & N.) *R. leucostachys*, *Lindl. Syn.* 2nd ed. p. 95; also of *Leighton, Flor. Shrops.* p. 280, and Lees in *Steele's Hand-Book of Field Botany*, p. 57 (but not *leucostachys* of Smith). *R. nitidus*, *Babington, Syn. of Brit. Rub.* p. 9, and *Leighton's Fascic. of Shrops. Rubi* (not of Rub. Germ. according to figure and description).

Of rather general occurrence in wild spots on the borders of woods, but unequally distributed, and not a common road-side bramble. In many places in Worcestershire, Devonshire, Middlesex, Buckinghamshire, and Herefordshire. Shropshire, Rev. W. A. Leighton!; Leicestershire, Rev. Andrew Bloxam!; and Cheshire, the late Mr. S. E. Wilson! Most probably in all the southern and midland counties. Abundantly near Aberystwith, Cardiganshire. June to end of August.

This bramble may be known by its singularly *crisp, plaited, elliptical leaflets*, with greyish green pubescence beneath, on very prickly petioles, which become *densely prickly just where the leaflets commence*. The rachis, *slightly hairy at the base*, becomes *densely pilose above among the flowering branches*. The panicle consists of numerous compound branches *spreading out nearly at right angles to the rachis*, and sometimes even drooping, these are *very hairy*, thickly armed with pale, declining prickles, and *leafy nearly to the summit*; the upper floral leaves being simple, elliptical, and *crisped or plaited similarly to the foliage of the stem*; the uppermost branches being often closely and intricately crowded together. The calyces are covered with long hairs, sometimes prickly, and as well as the pedicels have often glands scattered upon them, but concealed to a superficial view in the dense pubescence. Sepals somewhat elongated, with a blunt termination, rather loosely reflex in flower, and frequently much stained with red at the base within. Petals almost invariably white. Fruit rather small, consisting of many drupes, black.

The barren stem is stated to be suberect by Mr. Babington, but according to my observation, and I have marked it carefully, it arches as much as any other, and most certainly I have seen it extending a long distance accumbent on a thicket, and very much branched. In the vicinity of Burnham Beeches, Bucks, where this form is abundant, I particularly observed it arching and rooting in the usual manner of the tribe this very autumn; yet no doubt occasional suberect forms may occur in the shade. The base of the secondary branches



is hairy, and scattered hairs are generally present on the stem, though as in other instances, when fully exposed to the action of the sun, it becomes denuded.

It is remarkable that this bramble is not mentioned by Mr. Borrer in the third edition of Hooker's 'British Flora,' although a specimen under the name of "plicatus" exists in the Smithian herbarium. My acute friend the Rev. A. Bloxam had previously informed me that Mr. Babington's plicatus was identical with my leucostachys, but it is only since Mr. Leighton's published observations in the 'Phytologist' that I have been able to satisfy myself fully, by an examination of Smith's specimens in the Linnean Society's museum. I presume that Dr. Bell Salter's Hampshire nitidus is the same as Mr. Babington's, but his description seems not exactly to coincide with the common plant I am familiar with. *R. affinis* is really a suberect species, with a very lofty, perfectly smooth stem, and quite distinct from this species.

EDWIN LEES.

Cedar Terrace, Henwick, Worcester,  
November 2, 1848.

*Notes and occasional Observations on some of the Rarer British Plants growing Wild in Hampshire.* By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 343).

*Lythrum Salicaria.* I believe throughout the county in wet places. Frequent about Lymington, Bishopstoke and Southampton. Side of Titchfield River; Mr. W. L. Notcutt. Plentiful, but rather local, in the Isle of Wight, in wet willow thickets, meadows, &c. Much more frequent in West than in East Medina.

——— *hysopifolium.* Gathered, many years ago, in Pan Moor, at Newport, Isle of Wight, by Miss E. Kirkpatrick. I have been unsuccessful in rediscovering this interesting species in the above locality, or in finding it elsewhere within the county, but the caution and accuracy of that lady in determining the plants around her place of residence, and her full conviction on the subject, warrant its insertion here, without the further proof of specimens, of which I have seen none. A plant so fickle and transient in its stations as this, can scarcely be expected to persist through a series of years in the same

locality. It is a prize that must be seized and registered, or it may elude observation again for a lifetime.

*Peplis Portula.* Very common in the county and island in ditches, drains and on wet commons. Plentiful on Petersfield Heath along with *Isnardia palustris*, and from its similarity in habit and general appearance to that plant, is apt to impede the ready detection of the latter when sought for by persons previously unacquainted with it. Abundant on Short Heath, near Selborne, and on Wolmer Forest. The stem of the water purslane is made up of four tubes united around a central cord.

*Ceratophyllum demersum*? I recollect perfectly to have seen this or *C. submersum* in great plenty in the county a few years ago, I think in the river Test or Anton, below Romsey, but the exact locality has escaped me, not having been noted at the time. Heron Court, near Christchurch, Mr. Curtis, in Brit. Entom. (*cum icone*). In all likelihood not rare on mainland Hants, but the genus appears wanting in the Isle-of-Wight flora, in common with many other aquatics.

*Epilobium angustifolium.* Quite a frequent Hampshire plant in woods, thickets, on banks and in plantations, often in great quantity together. In vast profusion in the woods at Chawton Park, near Alton, especially in the valley betwixt the noble beech-hangers going from Beech Farm towards Meadsted, the sloping sides of which are literally covered with it, whilst the species is scattered over that wide domain for some hundreds of acres, May, 1848.\* Abundant in various places about West Meon, particularly in newly cleared copses. Betwixt East Meon and Clanfield. Between Petersfield and Langrish, and along the S. W. railway, betwixt Winton and Bishopstoke, in both places sparingly. Plentiful at Selborne; Dr. T. Bell Salter!!! In great abundance on the west side of Boscombe Chine, near Bournemouth; Mr. Curtis. In several parts of the Isle of Wight in plenty, chiefly in boggy willow thickets, but no where occupying large tracts of ground, as on the mainland of the county. It abounds likewise in the adjoining county of Sussex, as in St. Leonard's Forest and near Chichester, &c.; but it is needless to multiply instances of the occurrence of a plant which increased and diffused observation has shown to be common in the south, though our earlier floras would make it

\* I do not remember by the way ever to have been much more annoyed abroad by mosquitoes than in the *dry* beech woods at Chawton, about the middle of the last almost unprecedented hot and cloudless May, and such whacking fellows too!

appear to be frequent only in the north. It is indeed properly a plant of high and even arctic latitudes, but of great climatic adaptation, and admirably exemplifies that axiom of botanical geography, that the polar\* limits of plants are far more abrupt and definite than their equatorial boundaries; in other words, that species proceeding from the equator towards either pole, have their vanishing-points more distinctly traced on the earth's surface than those descending from higher to lower latitudes; and the reason is obvious: cold is so uncongenial to vegetable life, and warmth so propitious, that a small increase of the former, or what is the same thing, diminution of the latter, suffices to arrest the development of a species whose constitutional tendency is to warm or temperate zones of habitation, but a moderate excess of heat beyond what is requisite for healthy and vigorous vegetation, seems to affect the majority of plants but little, as we see in so many alpine species, which thrive in our low and warm gardens as well as on their native mountains. Besides, the plants of cold climates, in their advance towards warmer regions, can and do take shelter from an undue temperature in lofty, humid, or umbrageous places, but the deficiency of heat is very partially and imperfectly supplied to plants migrating from warmer to colder latitudes by shelter and radiation, conditions which can only be found in a few favoured spots. Of this species of willow-herb, two very tolerably constant and well-marked forms occur with us in Hants. The first of these is distinguished by its usually smaller size, narrower leaves, which are of a darker green, and much waved or wrinkled, and considerably glaucous beneath, as also by the narrower or more contracted spike of smaller and deeper-coloured flowers. The second variety resembles the garden state of the plant, in its flatter and broader leaves, of a brighter green, and scarcely, if at all, crisped or wrinkled, in its larger and paler flowers and more expanded spike, the entire plant very handsome and stately. The capsules I find similar in both forms, that is, erect and much elongated, nor have I met with any wild plants in which the seed-vessels were short and spreading, as we find them in cultivation (*E. brachycarpum*, *Steph.*), a state arising, I suspect, from arrested development consequent on the increased disposition, in a plant already prone to that mode of multiplication, to propagate by the root, which the rich and loose soil of a garden

\* I use the terms *polar* and *equatorial* as alike applicable to both hemispheres of our globe, whilst those of *northern* and *southern*, being of opposite attributes on each side of "earth's central line," of course are not convertible:

encourages. The former variety is by far the commoner in the Isle of Wight, the second, indeed, being very rare here, whilst it abounds in newly-cleared woodlands, and on steep banks in many places on the mainland: the Petersfield, Clanfield and West Meon stations being referrible to the large-flowered kind. I have likewise gathered it on Colonel Wyndham's domain, at Singleton, near Chichester, where it forms a perfect little forest at least six feet high, displaying all that beauty of colouring and luxuriant growth which so captivated Linnæus in this "royal plant" as, in his eyes, to invest the huts of the simple Laplanders, encircled by bowers of stately willow-herb, with the splendour of celestial abodes.\* The smaller variety is more restricted to low, wet thickets, or damp heaths, and owes its characters apparently to a less fertile soil; but though each retains its peculiar features under cultivation as far as has yet been tried, both approach one another by gradations which manifestly forbid their separation as species. Miss L. Sibley has found this species with white flowers, near Petersfield. *E. angustifolium* in its spiked inflorescence, distinctly clawed and spreading petals, deeply lobed style and declined stamens, betrays a generic as well as ordinal alliance with *Gaura*, whilst *Oenothera* is more faintly adumbrated in the broad, rounded petals, and the revolutely lobed style of the following species. These analogies in species of the same genus to conterminous genera are curious and instructive.

*Epilobium hirsutum*. This handsome species abounds throughout the Isle of Wight, in damp places, along road-sides, and in our wet thickets, which are often quite filled with it, sometimes attaining a height of seven feet. Plentiful in most parts of the county. I do not remember to have ever seen or heard of a white-flowered variety of this plant. Occasionally cultivated in the Isle-of-Wight gardens.

—— *parviflorum*. Very common in the county and Isle of Wight, along damp lanes, hedges, woods, &c. Flowers occasionally white, but about Selborne, where it abounds, they are of an unusually bright red or purple colour. A nearly glabrous variety is frequent with us, probably the *E. rivulare* of Wahlenberg, as Mr. Babington also supposes (Man. p. 115).

—— *montanum*. Common all over the county and island, on walls, wet rocks, banks, and in woods, &c.

—— *palustre*. By far the least frequent of the willow-herbs with us; at any rate, as regards the Isle of Wight, it may even be

\* 'Flora Lapponica,' p. 113.

called rare. In a pool betwixt Ryde and Brading, ditches near Sandown, and a few other places. On Short Heath Oakhanger, near Selborne, and probably not uncommon in the county generally.

*Epilobium virgatum*. Dr. Salter informs me that specimens pronounced by Mr. Babington to be this real or imaginary species have been collected in the Isle of Wight.

—— *tetragonum*. Extremely common in the county and island, in ditches, moist woods, hedges, &c.

—— *roseum*. Rare? Selborne; Dr. T. Bell Salter!!! Dr. S. remarks that this plant is usually found in cultivated ground, gardens, &c., but that about Selborne it is perfectly agrestal, growing on Short Heath, in sandy ground along the streams, as well as in the shady lanes about the village.

N. B.—*Oenothera biennis*? occurs occasionally in waste ground, about gardens, and in fields adjacent to them, but is nowhere, so far as I know, permanently established in the county or island. I have great doubts if the species so denominated be always the American plant which passes under the name on that continent, and which has smaller flowers than the naturalized outcast which we call *biennis*. The species of evening-primrose are very liable to variation even in their native region.

*Isnardia palustris*. Abundant in certain seasons in marshy spots and plashes, into which expands at intervals the shallow channel or drain for the superabundant water of the great pond on Petersfield Heath on its eastern side, in which neighbourhood (for it does not seem to be the identical station with the modern one) it was noticed nearly three centuries ago by John Goodyer, of Maple Durham,\* a Hampshire botanist of much zeal and acuteness, and rediscovered about a dozen years back in its present station, by Miss Rickman and J. Barton, Esq. In dry summers it would appear the plant is rarely to be found, and for several seasons I sought it, like others, unsuccessfully, but in the past and very moist summer of 1848, it was again plentiful on the wettest parts of the heath along the course of the channel above described, though the finest specimens were only to be got at by wading ankle-deep in mud and water, and these luxuriant examples very seldom bore flowers; indeed, I could find scarcely any in that state, when at Petersfield in July and September,

\* Maple Durham is an ancient tenement, once a religious house, two miles from Petersfield, on the Portsmouth road, in the parish of Buriton, and must not be confounded with the place of the same name in Oxfordshire, or with Maple Durwell, near Basingstoke, in this county.

though I took much pains to discover both flower and fruit. More lately it has been found in a second Hampshire station, by Mr. Borrer, its original discoverer, or rather rediscoverer in this country, namely, in a pool a little way out of Brockenhurst, towards Lyndhurst, growing with *Nymphæa alba* and other aquatics, but of more difficult access than at Petersfield!!! A somewhat practised eye is required to detect the *Isnardia* in its native swamps, even where it is known to exist; for the stems, immersed in water, and half hidden amongst the other herbage, may be overlooked for *Peplis Portula*, or some state of a *Potamogeton*; it is hardly to be wondered at, therefore, that it should so long have escaped notice, whilst, shrouded under a cumbrous and obsolete diagnostic phrase rather than a name,\* its occurrence in England was not even suspected. This is assuredly a beautiful, though not a showy, plant; the lucid, transparent green of its leaves, harmoniously blending with suffusions of the richest olive brown and bright red veined with crimson, can hardly find a parallel in any other indigenous vegetable of our land. On the continent of Europe and in America, *Isnardia palustris* and *Leersia oryzoides* have the same geographical distribution, and these seem good grounds for believing that the like will be found to hold true in this country. The latter will probably reward a diligent search in our Hampshire waters, and should be looked for in the localities pointed out in this journal (*Phytol.* ii. p. 1003). In Sussex it has lately been detected by Mr. Mitten, in a second station many miles remote from the original one at Henfield, namely, in Little Ease mill-pond, near Cuckfield, where Mr. Borrer kindly showed it to me, growing amongst reeds, early in the present month (October), the panicle, as usual, wholly included within the sheath.

*Circea lutetiana*. Plentiful in various parts of the county and Isle of Wight, in damp, shady places, woods, &c.

*Myriophyllum verticillatum*. Ponds and ditches, rare? In ditches communicating with the Avon, near Sopley; Dr. Pulteney in Hamp. Rep. Southampton Canal, by Millbrook; Mr. W. L. Notcutt. Not found in the Isle of Wight.

————— *spicatum*. Abundant in the marsh ditches of Sandown Level and elsewhere in the Isle of Wight. Near Hill Head; Mr. W. L. Notcutt. About Winchester, and frequent I believe over the county.

\* *Anagallis aquatica* flore parvo viridi caule rubro. "In a great ditch near the Moor, at Petersfield, Hampshire." Mr. Goodyer, *Merrett's Pinax*, p. 7.

*Myriophyllum alterniflorum*. Abundant in some of the marsh ditches in Sandown Level, and in pools in several places in the Isle of Wight, alone or mixed with the last, but I think perfectly distinct from it as a species.

*Hippuris vulgaris*. Apparently not uncommon in Hants, but very rare in the Isle of Wight, where it grows only in a few ditches on Sandown Level. In a wet meadow near Bishop's Waltham. Common in rivers and ditches about Winton. In Winnal water-meadows, on the north side of that city of deep, rapid, and translucent streams, I find it of most luxuriant growth, with stems completely submerged and leaves often deeply cleft.

*Callitriche verna*. Pools and ditches everywhere.

——— *platycarpa*. Frequent on the wet margins of pools, &c., in the Isle of Wight, and probably all over the county, but its distinctive characters seem to me very questionable, and just such as difference of locality might be supposed capable of creating.

——— *pedunculata*. A plant which I suppose to be this, but which I have not yet minutely examined, grows in several places in the Isle of Wight, chiefly in deep still waters of ditches and drains, but not very commonly.

*Bryonia dioica*. An extremely common and ornamental vine in hedges and thickets all over the county; rather less frequent on the mainland close by the sea, though still far from uncommon about Portsmouth, in Hayling Island, and elsewhere along the coast. By no means rare in the Isle of Wight, but almost wholly confined to the chalk and greensand of the interior and central part of it, about Newport, Carisbrook, Gatcomb, Buccombe, &c., shunning the line of coast through its entire extent, even where those rocks predominate, so that not a single specimen has occurred to my observation anywhere near Ryde, Brading, Shanklin, or in the Undercliff, whilst it is equally wanting at Cowes and everywhere to the westward of that place. A specimen or two has indeed strayed as far as Freshwater parish, and a few plants are scattered about Shorwell within a couple of miles of the south-west shore; with these very partial exceptions, the bryony is absent over a broad belt of country embracing perhaps two-thirds of the island, and which defines the limits of two other species with nearly equal exactness, namely, *Campanula Trachelium* and *Rhamnus catharticus*, that grow chiefly, if not exclusively, on the chalk, yet are not found to follow the extension of that formation coastwards. That an extreme maritime or insular locality does not suit the bryony, is apparent from its increasing scarcity westward, and its total absence

in Cornwall, Ireland, and Scotland,\* and its sparing occurrence in the Channel Islands. Even in the Isle of Wight, in those parts where it does occur and that not sparingly, its distribution is manifestly more sporadic than on the mainland and interior, the plants growing single or few together in one spot, not weighing down the hedges with an impenetrable matting of stems and foliage for yards together as we often see it doing in its inland stations. The abundance of this plant on Longwood Warren, near Winchester, is truly remarkable; it is there seen trailing like cucumber-vines over the dry stony ground, in the most open and exposed parts of that elevated and desolate tract, and even when growing amongst the clumps of bushes that partially clothe its naked and sterile surface, seems to disdain availing itself of their aid to indulge its usual habit of climbing. Called mandrake universally in the Isle of Wight. The dull scarlet berries have the most sickening fœtor of any plant I am acquainted with.

*Montia fontana*. Very common in the county and island in wet places, on damp arable land, &c. The larger variety, *B. major*, *M. rivularis*, *Gmel.*? in drains and ditches occasionally.

*Herniaria glabra*. Sandy shores, Portsmouth; Martyn. This I have not yet seen in or from its alleged localities.

*Scleranthus annuus*. Plentiful in corn-fields and dry waste places all over the county and Isle of Wight.

*Tillæa muscosa*. Sandy barren heaths; rare. Abundantly near Stoney Cross, in the New Forest, along the sides of the road by the inn and elsewhere; Mr. Hussey! This curious and minute plant abounds about Poole, in Dorsetshire, and will probably be found to inhabit the conterminous parts of this county not uncommonly if specially looked for.

*Sedum Telephium*, L.? In woods, thickets, on shady hedge-banks and grassy margins of fields. Decidedly rare in the Isle of Wight, where I find it only on banks and borders of fields at Pound Green, in Freshwater, but in some plenty, also near Asheys very sparingly. More frequent on the mainland. In a wood (Westwood?) near Netley Abbey. At Otterbourne and near Bishop's Waltham. Near a pond on going to Shirley across the fields; Mr. W. L. Notcutt. Is this the true *S. Telephium* of Linnæus, the Swedish plant having al-

\* The whole of Scotland is probably beyond its polar limit, which scarcely exceeds lat. 54° on the European continent, above which (in Sweden and Russia) it is replaced by the more northern and eminently eastern *B. alba*, erroneously given as an English (Cambridgeshire) species by Martyn.



ways the flowers yellowish green, not purple as in the more southern parts of Europe?

†*Sedum album*. A more than doubtful native of Hants. On the thatched roof of an old house in Yarmouth, Isle of Wight, where I have remarked it for several years past, but though perfectly established it cannot of course be deemed indigenous. South Beach, Hayling Island; Rev. G. E. Smith: but there are the remains of a garden on the spot it was said to occupy, and the station, which is near the "buildings," is open to suspicion on this last account also. I am not aware of any other or less exceptionable station for this species in the county. When we reflect that the great bulk of the species composing this genus inhabit elevated rocks and mountain districts, we cannot be surprised that the few that do accommodate themselves to the plains or inconsiderable altitudes should have the aspect of aliens and interlopers in situations so foreign to their constitution.

†—— *dasyphyllum*. On old walls and roofs, rare; most likely introduced originally, and subsequently escaped from cultivation in both, as it certainly is in one of its Isle-of-Wight stations. On Brad- ing Church, and especially on the south porch, with *Ceterach officinarum* in plenty; also on some walls in that ancient but decayed borough, though now almost destroyed by repairs. Abundant on tiled roofs at Alverstone Mill, near Newchurch, doubtless established from the garden of the miller, who has a great taste for horticulture. On the stone walls round the fields at Liphook; Miss Lovell! This sounds less suspicious than the foregoing stations, but I have not visited the spot, and doubt if the species be anywhere indigenous to Britain, though completely naturalized in many parts of the kingdom.

—— *anglicum*. On most parts of the Hampshire coast in plenty. On Ryde Dover, St. Helens, and other places in the Isle of Wight. Abundant on the South Beach, Hayling Island, at Portsmouth, Gosport, &c.

—— *acre*. Walls, rocks, roofs, and sandy ground; abundantly. This and the preceding are the only two indubitably native Sedums in this island and county.

†?—— *reflexum*. Common on walls, roofs of houses, and ruins (rarely and accidentally? on rocky banks) in the Isle of Wight, and as far as I have remarked frequent in the county generally. Often planted for ornament on cottage roofs. Though perfectly naturalized and spontaneously disseminated, this has not with us the look of an aboriginal production, its proper home being probably on rocks considerably above the sea level; yet excepting perhaps its controverted

varieties, *S. rupestre* and *Forsterianum*, it appears to be less alpine in its habit than most of its congeners, to judge from its stations in Germany, Switzerland, &c.

*Cotyledon Umbilicus*. On walls, rocks, and damp stony banks and hedge-rows. Rare in Hants. Hedge-banks, by Bohemia, Isle of Wight; Mr. George Kirkpatrick !!! Abundant on hedge-banks at Redbridge, at the head of the Southampton Water. In quantity by the road-side at Great Testwood, six miles from Southton; Dr. A. D. White. In our drier climate this plant scarcely attains to above half the size it does in the western counties, where, as in Devonshire, I have gathered it upwards of two feet in height.

N.B.—*Sempervivum tectorum* is excluded from this list of native and naturalized Hampshire plants as being in every instance propagated by the hand of man, and therefore not entitled to rank even amongst those of the second category. It is to be lamented that this and other vegetable productions foreign to our geographical position and climate, as *Swertia perennis*, *Crocus aureus*, *minimus*, and *sativus*, *Gentiana acaulis*, &c., &c., together with the entire of the Channel-Island plants, which are in no wider sense British than those of the rock of Gibraltar or any other of our dependencies, should continue, through a servile compliance with established custom and routine, often I am convinced in opposition to the better judgment that would reject them, still to encumber and I may say disfigure the pages of our general floras of the United Kingdom. I use the expression disfigure advisedly, because whatever destroys unity of design, whether in works of art, fiction, or science, is as it were an excrescence on their true proportions, and therefore a disfigurement in the strictest acceptation of the word. Why in the name of common sense must *Crocus sativus* still be doomed to linger on the soil of Britain, the shade of a defunct foreigner,—the merchant plant that has long ceased to survive the extinction of that trade which called him from his mountain home, in the Abbruzzi, to become like the Jew a denizen of our isle for business purposes with no ulterior view of settlement? If the species in the concrete were inadmissible, how much more absurd is it to retain it in the abstract—the shadow when the substance has fled. It is, however, refreshing to observe how most of these respectable representatives of by-gone error and blind devotion to authority are, thanks to Messrs. Babington and Watson, “growing less by degrees and infinitely small,” and are not permitted by them to go abroad without a guard of brackets or drawn daggers, to prevent their breaking bounds and re-asserting their ancient but usurped right

to citizenship: Surely it would be better to drop in future all mention of certainly extinct or non-naturalized species, than to continue giving to them "a local habitation and a name," by referring, however slightly, to the pages of 'English Botany,' and those earlier works in which they first appeared on the list of natives. The former of these books will ever remain a standard for reference to its pictorial illustrations; we should only have to regard such amongst its plates and pages as relate to the species in question as virtually so many blanks to be passed over unnoticed, and they would soon come to be looked upon in that light, and be neglected and forgotten. It seems to me an injudicious waste of time and space to rake up the ashes of a palpable and fully acknowledged error when further warning against it is needless; it is high time to clear our British flora from the mass of false natives, false species, and other blunders of the early days of botanical science, but the bracketing of often and again exposed and refuted mistakes tends rather to keep alive error than to suppress it; a dignified silence would be the most effective extinguisher to the last lingering claims of the species we have just alluded to.

A word or two on the Channel Islands. It would seem as if length of possession and incorporation with the rest of the kingdom by institutions, civil and ecclesiastical, had some how or other the power to overrule the decrees of Nature, and effect the juxtaposition of that group with our own shores rather than with the opposite coasts of France. Yet it is not clear to me that the recognition of the Queen's authority in Guernsey and Jersey, or the periodical visitations of the Bishop of Winchester to that transmarine part of his diocese, has effected the slightest change in the relative position of these islands with respect to our own since the conquest, or brought them one inch nearer to us than they were at that remote period; and unless it can be incontestably shown that the distance betwixt England and Jersey has diminished and is diminishing as the square of the times, or in some other satisfactory ratio, I humbly venture to suggest, that whilst we are proud to acknowledge the brave and loyal people of Sarnia and Cæsarea as fellow liegemen, and will stand by them against France and all the world, as they assuredly would stand by us in the day of trial, we should, nevertheless, henceforth and for ever (botanically speaking) cede, assign, and make over the soil of their beautiful islands and its native productions to that Gallic territory of which Nature insists on its still forming a part.

There is an old and trite proverb that "a miss is as good as a mile;" we may invert it, and say "a mile is as good as a miss;" for

were the Channel Islands but *one* as they are *many* miles nearer to France than England, the balance of proximity would incline, though not as greatly, yet quite as decisively, in favour of their continental connection, keeping out of view their similarity in geological and other physical features to the mainland of France as additional arguments for grouping them with the latter.

It will perhaps be urged that the plants of the Channel Islands, having been incorporated with those of Britain by the older botanists, and all succeeding writers, the weight of the precedent sanctions the continuance of the custom. But if the precedent be a bad one, as I think every unprejudiced person must admit it is, the mental subjection which adherence to its authority implies, is a reproach we should hasten to wipe away as soon as possible. Botany, in the time of Ray and Sherard, was not the beautiful and philosophical science it has since become, and that department of it, vegetable geography, which it is so peculiarly the province of all floras, general as well as local, to elucidate and extend, had not then been made a subject of inquiry, or was even so much as thought of as matter for disquisition. An extension of the boundaries of the British flora to the Channel Islands, as at that time no recognized principle of unity or limitation was compromised by the act, might appear an indifferent or even natural proceeding; but the precision of a later day revolts at the attempt to continue the amalgamation of a portion of the French flora, however small, with that of England, on considerations purely political, for no other but these can be alleged in defence of so absurd a practice, unless it be an unwillingness to give up a dozen or two of plants long held peculiar to those islands, which have, like borrowed plumes, been paraded as if of native growth in all our publications since the days of the old botanists above mentioned.\* The Sarnians are very tenacious of their own laws, manners and customs, and with all their attachment to the crown of these realms, are not ambitious

\* An advance towards getting rid of these interlopers has been made in the 'Manual of British Botany,' which augurs well for their final ejection. But is not the 0 appended to the plants of the Channel Islands in that work a plain though tacit acknowledgment that such have no business to appear in its pages, as not naturally associating with the professed scope and object of a purely British Flora? Why, then, should their retention be suffered to disfigure and mar the unity of that excellent hand-book when the remedy is so easy? Let us hope that in the next edition of the Manual its accomplished author will have the courage wholly to discard these extraneous species by omitting *all mention* of them; the example, once set, will as surely be followed as was that by which the abuse was so long upheld before.

of being thought English, nor have centuries of political annexation sufficed to make them so, or wholly to supplant the Norman by a Saxon idiom. The race is essentially French, and will ever remain such, their position insures it, and if to themselves, *a fortiori* to the plants of their islands, which, could they but make themselves heard, would doubtless contend, in the purest dialect of Neustria, for identity of descent with the Norman inhabitants.

It is true a case may be conceived in which natural geographical relations and proximity must give way to artificial or political circumstances; for let us suppose the Channel Islands situated as near to our own coasts as they now are to those of France, and though speaking the language and holding the customs of Britain, to have been long annexed to the former country, we could not, *practically* speaking, include them in the English flora, because, forming no part of the English territory, we could assert no right of property in the soil and its productions. Yet *theoretically* we should have the better claim to the possession of both, and I question much whether this consideration would not so far outweigh the practical view of the matter, as at once to open our eyes to the absurdity we have so long been committing, in the attempted junction of two dissimilar and widely dissevered botanical areas. For my own part, had the island from which I am writing been a province of France from time immemorial, I should still think its flora but awkwardly assorted with that of Normandy, whilst at the same time, considered abstractedly, or apart from the question of territorial claims, I should see no greater impropriety if, in the construction of a Flora Gallica, the Channel Islands were held as forming a portion of France, than there would be in considering (as I suppose most people do) the Rock of Gibraltar as appertaining to the flora of Spain, though in the occupation of a foreign power. If the French have no *political*, we have no *natural*, claim to the Channel Islands, the relations of which to the mother country are as purely colonial as those of Malta or Corfu: this is plain by their many fiscal and legal immunities, the possession of a mixed currency, and their own Norman courts of judicature, &c. They are, in short, not English, either by position or otherwise, and their botanical abandonment is the only course open to us if we would preserve unity and consistency in treating of our national floras.\*  
*Mais revenons à nos moutons.*

\* After all, why cling so fondly to these outlying islands, if to make a bad title to the few peculiar plants they afford be the only motive for non-abandonment, seeing that the greater part of these species have been found on the south-west coasts of

*Ribes nigrum*. Damp or boggy woods and thickets; rare. In several parts of the Isle of Wight, usually sparing in quantity, but I think truly wild. I am not at this moment possessed of data relative to its distribution on the mainland of Hants. Inhabits the whole of central and northern Europe, even beyond the arctic circle.

— *rubrum*. Extremely frequent, and in some places abundant, in various parts of the Isle of Wight about Ryde, Newport, Freshwater, &c., in woods, thickets and hedges. I have no doubt a genuine native, the wild plant differing in some particulars from the garden variety, much in the same manner and degree as *Vitis vinifera* in its natural state does from the cultivated grape in the vineyard. (See Phytol. ii. p. 517). I know nothing of its distribution in mainland, Hants. In the woods at Redenham, near Andover; Mr. Wm. Whale. Widely spread over Europe from the plains to the mountains, and in America within the polar circle.

— *Grossularia*. Frequent, but sporadical, in woods, hedges and clefts of rocks in the Isle of Wight, and I believe over the whole county, quite wild. About Petersfield, &c. Very seldom found in fruit; the few berries I have seen were smooth and amber-coloured\* (*R. uva crispa*, L.). For further remarks on our wild currants see 'Phytologist' ii. p. 517 to 521.

The three foregoing species of *Ribes* are amongst those unfortunate

England, and the remainder may reasonably be expected to reward the present active spirit of research which is rapidly increasing the number of our *legitimately* British vegetables.

\* The non-production of fruit or seed is no argument, scarcely even a presumptive reason, against the indigenous origin of a species. It sometimes arises from the habitual defect or suppression of the necessary organs, and sometimes from the influence of climate. Of the last we have a notable example in our common ivy (*Hedera Helix*). This shrub has an extensive range over Europe; but in the more northern parts, as in Sweden, where it is truly indigenous, it is only in very favoured spots in the southern and maritime provinces that flowers and berries are produced. In those countries the ivy is scarcely known but in that form in which we see it in our woods and on banks, familiarly called barren or creeping ivy. The same is observed in southern Russia (excluding the Caucasian provinces), where Ledebour, and I think also, Pallas, remarks that it never fructifies. I have myself noted this increasing sterility of the ivy on advancing into the eastern and inland parts of continental Europe, where the winters are too rigorous for the perfect development of plants of such southern tendencies as the woody *Araliaceæ*. The fruit of *Acorus Calamus* is so rarely perfected, that its structure is practically known but to few botanists, as Mr. Brown has remarked to me; yet is it a very widely spread plant, being found over a great part of the globe, as are many other aquatics.

plants, which, for some reason or other, quite incomprehensible to myself, it is the fashion to look upon with an eye of suspicion, or even to denounce without scruple as a kind of vegetable squatters on the soil of Britain. I may partially except *R. rubrum*, which is generally admitted to be native to the north of England and Scotland, and Mr. Watson (Cyb. Brit.) seems disposed to credit its "apparent" claim to be thought indigenous in the south also, betraying, by that expression, a still lurking reluctance to concede his full assent to the proposition. Passing on to the third species, *R. Grossularia*, as requiring the same line of defensive argument in its behalf, we find the outcry against its indigenous origin general; no one has a word to say in favour of a gooseberry-bush beyond praising its fruit, there is something (perchance in its name) which indisposes us to receive it as a true born Briton. Now, although the gooseberry ideally be right pleasantly associated, in a certain savoury mess, with mental simplicity or imbecility, and even expresses, in its English vernacular, the type and symbol amongst animals of lack of discretion, I will incur the risk of being thought actuated by a fondness for both goose and fool in pleading the right of this useful, though humble shrub to be held an indigenous production, and I would challenge to the argument thus: if *R. Grossularia* be not a native of Britain, show me where is its true and undoubted home. This is an important question to have answered, because I have uniformly observed, that in the case of all those plants whose indigenous origin it has been the custom to suspect or deny, no attempt is made to show grounds for the opinion drawn from the only true touchstone of truth in this matter, the geographical distribution of the species beyond the narrow limits of our sea-girt isle. We *must* look abroad for the key to this ever vexed question if we would wish it satisfactorily set at rest, which I do not despair of seeing finally achieved; but this can never be accomplished so long as we rest contented with taking for granted the unsupported opinions of others derived from a contracted sphere of observation, and neglect the only data which can give us the solution we are seeking. See Phytol. ii. p. 518, note.

Now I find on consulting a great variety of authentic sources, that *R. Grossularia* is distributed over the major part of southern, central and northern Europe in precisely the same situations in which I find it here at home, and in no other. I cannot learn that it is a native of Asia,\* Africa or America, from whence we might originally have de-

\* The Asiatic representative of our common gooseberry is the Siberian *R. aciculare* of Smith.

rived it, I therefore conclude it to be a **strictly** European species, and as such, and from its known range, *likely* to belong to our portion of that continent over which we have just seen it is so widely diffused. Furthermore, I find the gooseberry inhabiting the deep recesses of woods and rocky dells, far from the haunts of man and from cultivation. I put these facts together, and think myself justified in drawing from them the inference that the gooseberry is as truly native with us as it is on the continent of Europe, to which quarter of the globe it seems exclusively appropriated. The fact of its being often, and perhaps more commonly than otherwise seen in hedges and other doubtful or suspicious places, is surely, taken by itself, no sound argument against the point contended for, because any native plant in such general cultivation would, as this does, be continually straying beyond the precincts of the garden, and the more readily as being the natural product of the soil and climate.\* As for the hackneyed and popular mode of accounting for the propagation of this and other supposed foreigners through the agency of birds dropping the seed, the argument is not worth refuting, this being one of the many means employed by Nature herself for the dissemination of species the seeds of which are unfurnished with mechanical contrivances for their diffusion abroad.† An explanation like the above can only be adverted to in the case of plants which we see springing up around habitations or in decidedly suspicious places; beyond this it is of no weight or value whatever. I do not, on perusal of the writers of continental floras (an extensive collection of which, old and new, I am much in the habit of consulting), find the same disposition to doubt the origin of species which seem so peculiarly to characterize the botanists of this country, that they must needs have recourse to the hypothetical

\* The genus *Ribes* belts the whole globe under our own and other temperate parallels, the species only changing with change of climate and longitude. Thus we have *R. Grossularia* as one appropriated to the woods and rocks of the western extremity of the old world. *R. nigrum*, *rubrum* and *alpinum* stretching over the entire continent from Italy to Lapland, and eastward through Siberia to Kamtschatka, *R. rubrum* extending beyond Behring's Straits to the extremest arctic lands of America. In the south these species inhabit the mountains or higher grounds, in the north descending into the plains, and even in our central Europe are found at slight elevations or at the sea-level, in cold, shady, or damp situations. Crossing the Atlantic, we find under our latitudes in Labrador and Hudson's Bay, the analogues of our black currant and gooseberry in *Ribes floridum*, *Cynosbati* and some other American species, which finally give place on the west of the Rocky Mountains to *R. sanguineum* and congenerous kinds with large and showy flowers.

† Phytol. ii. p. 518.



agency of birds, monachism, garden escapes, and other problematical and unproved operative causes to account for the dissemination of half the plants of our country whose flowers are a little more specious in appearance than ordinary,\* without considering that Nature in her beneficence has not left the most hyperborean regions, or the most sterile wastes, unadorned by some rare and lovely floral productions to gladden the general desolation, whilst she scatters, with a yet more unsparing hand, her richer gems over temperate and fertile countries. Cast a glance over the inhospitable and frigid Siberia, on

\* To give one instance out of a hundred that might be adduced, it has been conjectured that the *Arbutus* which so profusely adorns the Lakes of Killarney and their neighbourhood, was introduced by the monks of Mucruss from the south of Europe in very early times, because a tree of such exotic aspect was thought very unlikely to be of native growth; and considering the narrow limits within which it is confined in Ireland, and the long leap it has taken to establish itself so far to the northward of its limitrophe parallel on the continent of Europe, there seemed reasonable ground for the supposition. But more extended observation has amply shown that the spontaneous growth of the *Arbutus* in the west of Ireland, is clearly demonstrated by some plants that accompany it being precisely those which are its associates in the south of Europe, and have their vanishing-point in nearly the same parallels and meridians with itself. Such are *Erica mediterranea*, *Daboecia polifolia* and *Euphorbia hyberna*, all species of an extreme western distribution, and whose absolute spontaneity in Ireland never has been or can be called in question (*Phytol.* ii. p. 518, note). Had this fact been known or reasoned upon, the gratuitous assumption of the introduction of the strawberry-tree into Ireland by human agency would never have found favour with botanists; certainly with none who, like myself, have witnessed the wild profusion in which no hand but Nature's has flung it forth, in ever-verdant beauty, over mountain, crag and rocky islet, amid the splendid scenery of those unrivalled lakes. It affords also a triumphant illustration of the value of the study of phyto-geography in assisting to ascertain the real limits of plants, and which alone, I repeat as my firm conviction, will enable us to adjust the discordant, and I must add, often absurd views taken by British botanists of the origin of our indigenous vegetables. I have never heard a *satisfactory* reason, rarely, indeed, any reason at all assigned, why *Tilia parvifolia*, *Fagus sylvatica*, *Humulus Lupulus*, *Daphne Mezereon*, *Phyteuma spicatum*, *Vinca minor*, *Muscaria racemosum*, *Narcissus Pseudo-narcissus*, *Lilium Martagon*, *Fritillaria Meleagris*, *Tulipa sylvestris*, *Impatiens Noli-me-tangere*, *Helleborus fetidus* and *viridis*, *Viola odorata*, our three *Ribes* and many others, *should not* be genuine natives; yet have all these in their turn been starred and daggered, and doubted and denounced, some by one and some by another, in a diversity of conflicting opinions that must sorely puzzle French, German, Dutch, Danish and Swedish botanists to comprehend, who are accustomed to consider most of the above species as indisputably belonging to their respective floras, and thankfully accept them at the hand of Nature without carping and cavilling with disputatious nicety about their origin. In the 'Manual of British Botany' many of the typographical symbols of scepticism, so frequent in other works on the same subject, have been omitted, which is one amongst the reforms which that useful publication has effected.

the Altaic chain of mountains, and the vast plains at their feet, where the mean temperature of the interior of the earth's crust is but little above the freezing-point the year through, yet what an array of even southern types of vegetation does the short and not very warm summer of some five months' duration at most unfold to the botanical traveller, in the various species of Zygophyllaceæ, Rutaceæ, Amaryllidaceæ, Liliaceæ, Tamariscaceæ, and even of arborescent Leguminosæ, in *Halodendron*, *Caragana*, &c., a proof that Nature is not easily repressed in her efforts to decorate this world of ours with all that is fair and lovely, even where climate is most opposed to her benign endeavours! And shall not our happy island of Great Britain possess some floral beauties truly her own, when the same have been so lavishly bestowed on rude Siberia's ice-bound hills and deserts? May not the lime and beech clothe *our* slopes as well as those of France and Germany, *our* woods be carpeted with periwinkle and "Violets dim," festooned with the wild hop-vine, or made radiant with spring daffodils, as well as those of our neighbours across the Channel, without having our faith in the rightful possession of these gifts of Flora shaken or put to flight by eternally hearing from the lips of some botanical infidel or other, the ungracious exclamation, "*vix ea nostra voco?*"

It will not, I think, be difficult to trace the causes which have led to this remarkable scepticism in the botanists of Great Britain, which I shall now briefly proceed to consider.

Isolation from the rest of Europe by natural position, and a long war, had, for a succession of years before the opening of the continent in 1815, thrown our botanists upon the scanty stores of information relative to our native plants which could be gleaned from the few floras of the kingdom then extant. Since then, and previously to the appearance of the *Manual*, our standard British floras had been compiled by botanists residing in the middle or northern parts of the island, and who were either not very assiduous in their investigations in the field (in some cases from disinclination, in others from physical inability for the performance of a task so laborious and demanding such continued exercise of patience and perseverance), or had their time and thoughts engaged with professional duties, or devoted to the interests of the science in a more general way. Hence it happened, that these floras, excellent as they were in other respects, were extremely defective on some points where minute and oft-repeated personal observation was required to attain to accuracy. Such were the flowering-times of the species, their distribution over the country, and

the question of spontaneity. The want of foreign authors, by consulting whose writings these and many similar omissions and mistakes might have been avoided, but of whose labours we neglected to avail ourselves long after they were made accessible to us by the peace, gave paramount authority in turn to the Floras of Withering, Smith and Hooker, and the tendency in mankind to credit the *verba magistri* rather than take the trouble to think and inquire for themselves, propagated a host of errors on these heads, whilst opinions were bandied about at second hand, without any accession of truth from abroad, in an endless round of crude assertion or conjecture. Add to this, that the comparatively few field botanists of the day were for the most part men of the old Linnæan school of collectors, who, if they could but add a rare plant to their herbarium, or a new species to the national flora, were little solicitous to advance the philosophy of the science by any observations on the structure, habits or distribution of our indigenous vegetation. We are too prone to imagine that in the way of discovery all has been found that can be found, and it has more than once happened to myself to hear on the announcement of a new plant an expression of doubt or surprise, such as, "Oh, indeed! but I cannot find it in Hooker, Smith or Withering;" the process of inferential reasoning being apparently this: if a native, it should be in those authors,—those great authorities could hardly have been ignorant of its existence, it has therefore probably been planted or otherwise introduced.

Fries\* complains, that the botanists of middle Sweden do not sufficiently confide in the genial climate and soil of Scania, and hence refuse admittance into the 'Flora Suecica' to many plants which he thinks should rightfully enter therein, because not having seen them truly wild in their own districts, they cannot be persuaded to believe them so in this, the most southerly province of Scandinavia. A similar and equally erroneous impression as regards the plants of our southern coast may be occasionally traced in the floras of Scotland and the north of England, in which some of our most indubitably native plants have had their spontaneity questioned all over the kingdom, because in those parts of it they never appear as aboriginals.†

\* Fries Nov. Fl. Suec. p. 10.

† Thus in the 'Flora of Forfarshire,' very lately published, the author observes of *Narcissus Pseudo-narcissus* (p. 191), that "it has probably no claim to be considered a British plant, but is hardy and easily naturalized." Mr. Gardiner could never have seen this species as it displays its boundless profusion of flowers over acres of our remotest woodlands, or have studied its geographical distribution on the continent, or

But this loose mode of reasoning is best met by referring to the distribution of the suspected species abroad, which will seldom fail to expose the fallacious premises. Popular and historical tradition is the last ground I shall mention as having been advanced against the indigenous claim of some British species. Thus the spontaneity of the hop has been opposed on the faith of an old distich not very much to the purpose if fairly examined, and that of the cherry and beech on evidence which has nothing but its classicality to recommend it. With respect to the hop, Sir James Smith says, "I have sometimes suspected hops not to be indigenous, which was also the opinion of Lightfoot with regard to Scotland. But Haller says they are never cultivated in Switzerland, where nevertheless the wild plant is abundant, and it may with equal probability be reckoned a native of Britain" (Engl. Fl. iv. p. 241). Sir James might have added, that a plant found in every country of Europe, from Spain and Italy to Norway, Finland, and Russia, as high as 63° of latitude, and throughout Siberia and a part of North America, is not unlikely to be indigenous to the British Isles. I am convinced that no plant is more truly and incontestably wild than the hop with us; it abounds even to profusion in the Isle of Wight, where it is never cultivated, and quite as much in those parts of mainland Hants where hop grounds do not exist as where its cultivation is most extensively carried on. Yet Sir Wm. Hooker brands it with the asterisk as a certainly introduced species, though without assigning any reason for doing so. Smith, we see, appeals to geographical distribution against his own scepticism, but apparently without knowing the full power of the argument he employs; his conversion is therefore less hearty and entire than it would probably have been had he traced the range of this species to its utmost limits. This example of the hop is instructive, as showing on what slight grounds, or none at all, the nativity of our plants has been questioned or denied. But an end to this long yet I trust not altogether useless digression.

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he would scarcely have formed so hasty an assumption. He would have seen that it is the last outlying species towards the north of its eminently European genus, ranging through Holland, Belgium, and Germany to the south shores of the Baltic, and therefore *quite as likely* to be indigenous with us up to the same latitude (54°) in its perfectly *wild* looking localities. Indeed, it is now admitted on all hands to be a true native of England, after some nonsense spoken at times, *more majorum nostratum*, about having been *perhaps* a garden flower and introduced by the monks, and so forth. I quote from the above useful and agreeably written little work to show how error may be originated and kept alive by such gratuitous conjectures as these.

*Saxifraga granulata*. Meadows and pastures; rare? Abundant on Magdalen Hill and elsewhere near Winton; Dr. A. D. White!!! Chilbolton; Dr. Pulteney in Hamp. Rep. Pingleston Down, near Alton; Mr. F. Forder. St. Mary Bourne, three miles from Whitchurch; Miss Hadfield! Near Andover, at Clanville; Mr. Wm. Whale. Not found in the Isle of Wight.

——— *tridactylites*. On walls, rocks, and sandy ground. In several parts of the Isle of Wight, but by no means common. Walls of Quarr Abbey, and on Gatcomb Church. Abundant on the sandy shore of Gurnet Bay; Miss G. E. Kilderbee!!! Common on old walls at Winchester. At Wallington and N. Fareham; Mr. W. L. Notcutt.

*Chrysosplenium oppositifolium*. In wet places, ditches, brooks, &c. Abundantly throughout the county and Isle of Wight.

——— *alternifolium*. Very rare. Near Hedley; Mr. Brown in Merrett's Pinax. Found there, but very sparingly, in 1844, by Mr. W. W. Reeves, to whose kindness I am indebted for a specimen of a plant of uncommon occurrence in the south generally.

[To be continued].

#### ERRATA.

Page 336, for *Beeker* read *Becker*, and for *Frankfort* read *Frankfurt* (the German orthography for that city).

Page 337, for *Langwood* read *Longwood*.

Page 338, second line, for *eastern* read *earthen*.

Page 339, for *Bartoloni* read *Bertoloni*, and third line from bottom, for *mashes* read *marshes*.

Page 341, the words *dark green* should have been in italics, because they allude to the *Cerastium atrovirens* of Babington. As the words stand without emphasis their meaning will probably be unintelligible to nearly all readers.

Page 343, for *angustifolius* read *angustissimus*, and lastly, for *gage* read *Gage*, as being a proper name.

WM. A. BROMFIELD.

Eastmount House, Ryde,  
Isle of Wight, November 6, 1848.

## BOTANICAL SOCIETY OF LONDON.

*Friday, November 3, 1848.*—J. E. Gray, Esq., F.R.S., President, in the chair.

The following donations were announced :—

'The Hand-Book of British Ferns,' by T. Moore, presented by the author; 'Proceedings of the Literary and Philosophical Society of Liverpool during the 36th Session,' presented by that Society; Parts 1 and 2 of Vol. i. of the 'Transactions of the Tyneside Naturalists' Field Club,' presented by the Club.

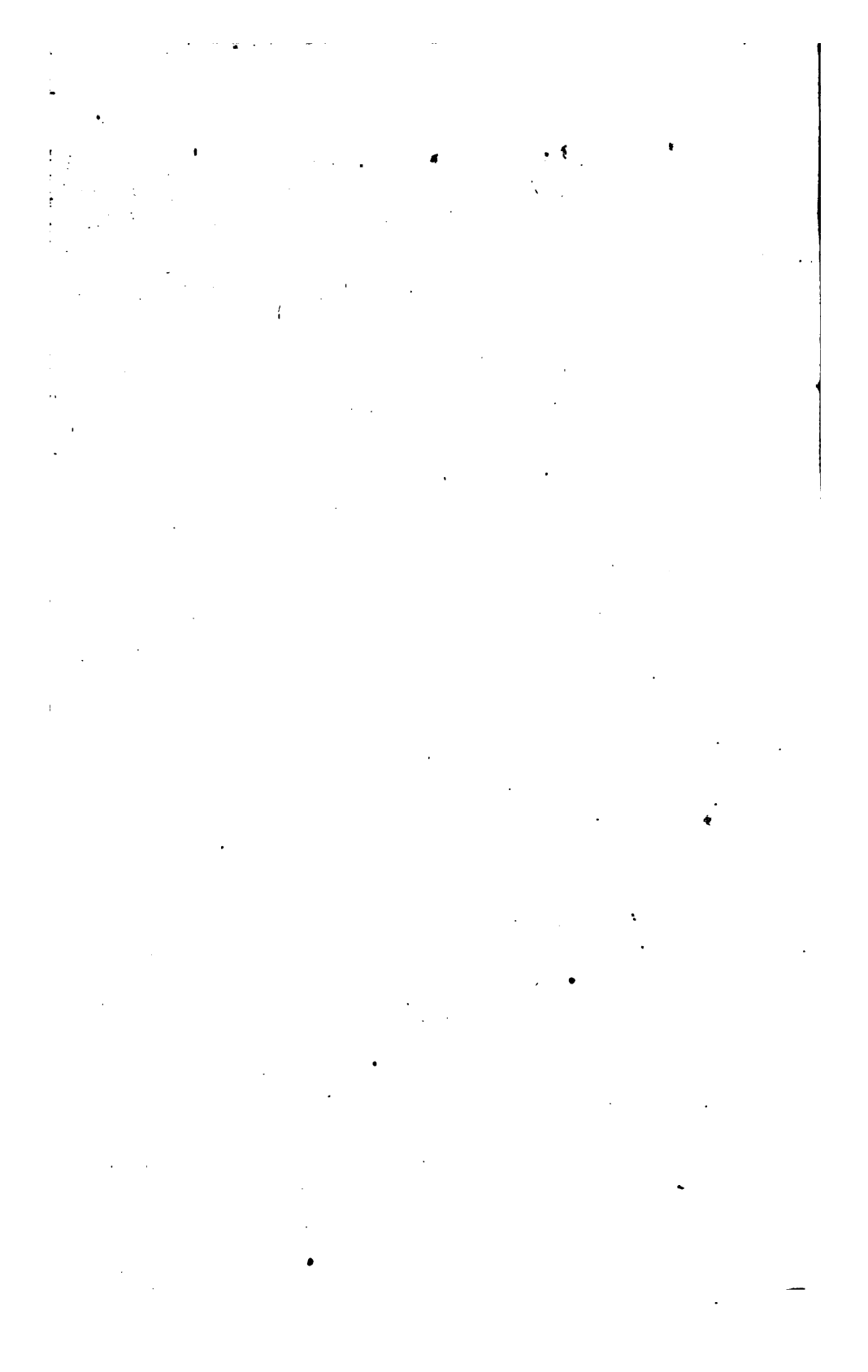
T. C. Hunt, Esq., Her Majesty's Consul at St. Michael's, presented a box of Azorean specimens, including four species not previously known to occur in those isles, one of them being a remarkable handsome *Vicia*, but whether a new species, or one already described, has not yet been satisfactorily ascertained.

Mr. Hewett Watson presented some foreign plants, chiefly European and Canarian.

British plants had been received from Mr. Hewett Watson, Dr. Bromfield, Dr. Bossey, Dr. Dewar, Mr. G. S. Gibson, Mr. J. B. French, the Rev. Andrew Bloxam, the Rev. H. Marsham, Mr. H. Taylor, Mr. T. Bentall, Mr. James Ward, Mr. J. Hussey, Mr. R. Withers, Mr. G. Lawson, Mr. W. B. Booth, Mr. J. Storey, Mr. S. Hailstone, Mr. B. D. Wardale, Mr. James Bladon, Mr. J. L. Lawrence, Mr. F. Barham, Mr. J. W. Salter, the Rev. T. Butler, Mr. S. P. Woodward, Mr. T. Moore, Mr. E. G. Varenne, Mr. D. Price, Mr. J. Reynolds, Mr. G. Cooper, Mr. J. Rich, Mr. G. Rich, and Mr. G. E. Dennes.

W. Brown, Esq., G. Hickman, Esq., R. Withers, Esq., and J. Stewart, Esq., were elected members.

Mr. W. B. Booth exhibited a specimen of *Erica Watsoni*, one of the intermediate forms between *E. ciliaris* and *E. Tetralix*, referred to the former species by Mr. Bentham, in De Candolle's *Prodromus*, but to the latter species by Mr. Watson, its first discoverer many years ago. The specimen presented by Mr. Booth resembled both *E. Tetralix* and *E. Mackaii* more closely than it resembled *E. ciliaris*, although still inclining partially to the last of these three by its ventricose corolla. Though apparently a hybrid between the two, with intermediate characters, the aristate anthers assign it to *E. Tetralix* in preference to *E. ciliaris*.—*G. E. D.*













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